

THE PLAN OF ADJUSTMENT OF DEBT OF COFINA: SUSTAINABILITY AND FINANCIAL CAPACITY OF PUERTO RICO'S ECONOMY

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1. Introduction

1.1. Purpose of the position paper

This position paper is written on behalf of (1) Capítulo Autoridad de Carreteras (“HTA Chapter”); (2) Capítulo Instituto de Cultura Puertorriqueña (“ICP Chapter”); (3) Capítulo Oficina del Procurador del Veterano (“OPV Chapter”); (4) Capítulo de Oficina Desarrollo Socioeconomico y Comunitario (“ODSEC Chapter”) y (5) Capítulo de Jubilados (“Retirees Chapter”) (Collectively known as “PROSOL-UTIER”).

The general purpose of this paper is threefold:

- (1) Examining the long-run economic sustainability of the Puerto Rico’s economy facing the debt services.** The debt “sustainability” refers as the ability of a country to meet its debt obligations without requiring debt relief or accumulating arrears. This task requires making projections of intended borrowings and economic variables over a horizon of 40 years period including the protection and funding of essential services.
- (2) Assessing the COFINA Plan of Adjustment of Debts on the basis of financial capability of the debt sustainability and the requirements of PROMESA;** and
- (3) Forecasting long-run Sales and Use Tax figures** and its probable allocation that would compromise debt servicing payment and the Commonwealth’s funding for essential services and pension payments under the COFINA Plan of Adjustment of Debts.

In order to perform these tasks, the following official documents were examined:

1. Commonwealth Certified Fiscal Plan of October 23, 2018 and its Exhibits
2. COFINA Certified Fiscal Plan and its Appendix of October 18, 2018
3. COFINA Amended and Restated Plan Support Agreement of September 20th, 2018
4. COFINA Plan of Adjustment of Debts and Disclosure Statement of November 26th, 2018, and its Appendix (COFINA Plan)

5. Commonwealth of Puerto Rico Motion Pursuant to Bankruptcy Rule 9019 for Order Approving Settlement Between Commonwealth of Puerto Rico and Puerto Rico Sales Tax Financing Corporation and Exhibits.

1.2. Summary of results

The findings of this paper can be summarized in the following: (1) the COFINA Plan of Adjustment of Debt is uncertain and totally unreliable; (2) the COFINA Plan cannot be consistent with the current relevant Certified Fiscal Plans because they are uncertain and totally unreliable; (3) the Fiscal Plans and the COFINA Plan are not feasible; (4) the Fiscal Plans and the COFINA Plan do not ensure the funding of essential public services; (5) the Fiscal Plans and the COFINA Plan do not provide adequate funding for public pension systems; (6) the Fiscal Plans and the COFINA Plan do not provide for the elimination of structural deficits; and, (7) before or after 2034, the Fiscal Plans and the COFINA Plan will lead Puerto Rico to another default of payment in the bondholders obligations. In sum, the Fiscal Plans are not economically feasible and lack scientific reliability to develop dependable revenue and expenditures projections, which are indispensable to address the confirmation of the COFINA Plan.

The subsequent sections address the following topics:

1. The issue of Secular Stagnation in Puerto Rico;
2. Analysis of the Certified Commonwealth Fiscal Plan;
3. Analysis of the Sales Tax Revenue Bonds and COFINA Fiscal Plan;
4. Essential Services; and
5. Scenarios of consumption expenditures and SUT's Collection

2. Secular Stagnation and the Economy of Puerto Rico.

But, whereas business-cycle theory treats depression as a temporary, though recurring phenomenon, the theory of secular stagnation brings out the possibility that depression may become the normal condition of the economy. Harris, Seymour E. (1943). (1897-1974) (Harvard, A.B., 1920; Ph. D., 1926) was Littauer Professor of Political Economy at Harvard.

Cited at Postwar Economic Problems. New York, London: McGraw Hill Book Co. pp. 67-82. Chapter IV Secular Stagnation by Alan Sweezy.

2.1. The framework of Secular Stagnation

Traditional macroeconomics books portray, at ordinarily, that aggregate economic activity experiences recurring hikes and downswings. Business Cycles are recurrent but non-periodic patterns. These macroeconomic fluctuations are built-in features of the capitalist system but also, are explained by the dynamic natures of the changes at population and ageing, consumption, investment, innovations in technology, among other factors. Then, a recession or Depression is only a temporary phenomenon which only interrupted momentarily the road to economic prosperity. Under such ordinary way of economic approach, the recovery (expansion) of the economic activity is always granted. The only concern, then, would be how to identify the expansive factor or combination of factors that trigger the progressive variables, which, in turn, would be helped by the array of instruments of monetary and fiscal policy of the country.

Nowadays, there are three prominent concepts in the most recent macroeconomic knowledge: business cycle, balance-sheet recession, and **secular stagnation**. Some economists postulate that the recovery of the European economy is not only slow and fragile, because of the presence of a financial cycle and by balance-sheet recession effects, but also because of stagnation in the economic growth, accompanied by strong deflationary trends.

The secular stagnation is a thesis to some extent, contrary to this traditional view of economic cycle, because it is part of the theory of complex systems. The secular stagnation conforms to contemporary currents of the theory of complex systems or the Economics of Complexity. Within this paradigm, the explosion of unpredictable economic shocks proved to be impossible to solve, or reduce, through the classical and neo-classical theory. In the secular stagnation thesis, economic factors are combined into an intricate network of mechanisms that make complex crisis and at the same time, extend it in a perverse dynamic that makes unsuccessful the monetary and fiscal policies from the traditional macroeconomic. It is an inability to move toward a steady-state of growth or achieving macroeconomic potentially. Then, secular stagnation refers to "*a condition of negligible or no economic growth in a market-based economy*".¹

¹ Financial Times. *Definition of Secular Stagnation*. Retrieved October 9, 2014.

The checklist of secular stagnation syndrome is the following:

1. Rising saving rate in the economy from domestic or external sources;
2. Massive decline in investment rate due to the lack of attractive gainful opportunities;
3. Autonomous slowing of population growth;
4. Increasing longevity that induces lower savings rate due to life cycle pattern;
5. Under-consumption trend attributable to functional inequality of income distribution; [Deceleration of real consumption]
6. Declining trend in the value of capital goods [property values];
7. The insensitivity economic growth to technological innovation due to its proper range of adaptation or range of applicability; and,
8. Shrinking of the economic scale and scope.

The hypothesis of the secular stagnation rises contemporaneously through an intervention of Harvard University economist and former President, Lawrence Summers, quoting the original concept poured by the economist Alvin Hansen in the 1930's. At the end of the 1930s, the economy of United States and other developed nations, observed a slow population growth coupled with an absence of technological innovations. Thereby, such developed economies were experiencing prolonged stagnation, with the absence of a clear recovery horizon. However, post Second World War boom invigorated the level of investment and technological innovations for a recurring and strong prosperity until the arrival of the great 2007 recession.

2.2. The Case of United States economy

Due to the great global recession of 2007 —also known as the sub-prime mortgage financial crisis— a great economic fragility of the economies of Europe, Japan and the United States was observed by professor Summers. Even when real interest rates were low or negative, and the sources of savings were relatively robust to real investment in physical capital, the potential rate of growth was lower. Monetary policy combined the traditional recipe with other less traditional -quantitative easing- to work with the mortgage crisis and the rescue of the

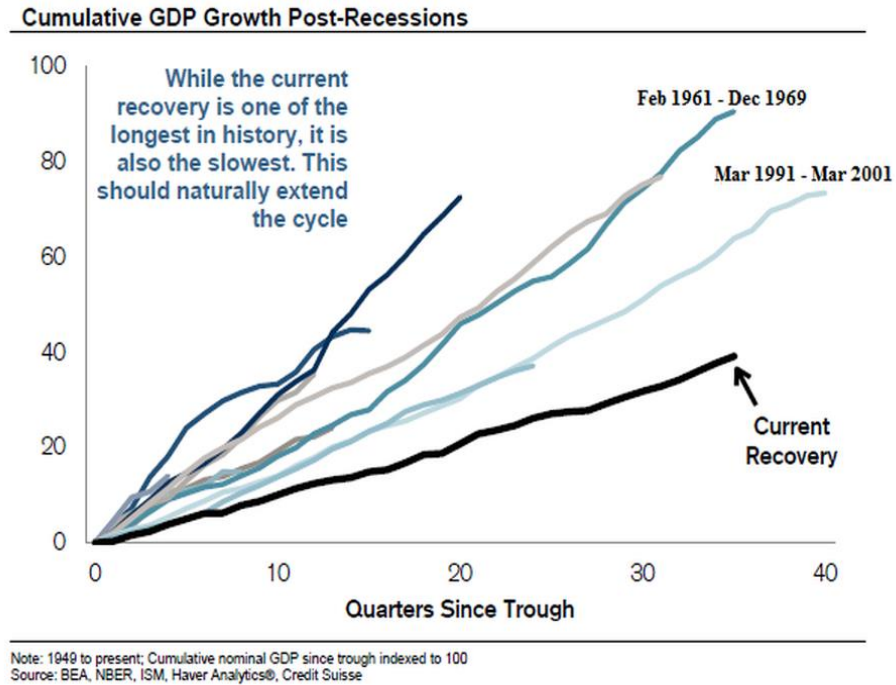
financial sector. However, the results were not good enough as expected by many economists because of the lack of current and potential growth, the reduction of population growth and lower rates of labor participation. It was also due to the slowdown of the innovations in technology, the excessive accumulation of debt relative to assets and asset bubbles. All these factors were promoters of the secular stagnation after 2007.

In the United States, secular stagnation refers not only to the retarding of economic growth but rather to the slowing of potential real GDP growth. The retardation of potential real GDP growth matters because of its direct impact on the standard of living and its indirect effect on net investment, which in turn feeds back to slower productivity growth. According to Professor Robert Gordon (2016),² the sources of the decline in productivity growth combine diminishing returns that have set in following the **Information and Communication Technology (ICT)** revolution of the 1996-2004 "dot.com" **Era** with a decline in business dynamism, as the entry of new business firms has steadily declined over the past three decades relative to the exit of existing firms. Moore's Law describing the steady exponential increase in the number of transistors on a chip became obsolete a decade ago. The historic rise of educational attainment has slowed to a crawl, and the declining share of children growing up in two-parent families may lead to a future decrease in high-school completion and an increase in criminal activity among youth. While future productivity growth will be slower than before 2004, it will still continue as in the past decade at a rate slightly in excess of one percent per year.

Even more, a recent article from the **Wall Street Journal** analyzed the Post Recession recovery periods, through accumulating the growth rates. The history tells us that current recovery (after the 2007 Recession), exhibited the lowest impulse response relative to previous recessions (See Graph 1). Clearly, recovery after the 2007 U.S. Recession was a slow grinding process that was more protracted than prior recoveries. These outcomes agreed to Lawrence Summers's position regarding that the United States economy also passed throughout a secular stagnation process, with lower growth rates and less working age population.

² Gordon, R., *The Rise and Fall of American Growth*, published by the Princeton University Press in January 2016.

Graph 1 - Cumulative GDP Growth Post-Recessions



Source: *Post-recession GDP growth... The Daily Shot (Wall Street Journal)*.
<https://blogs.wsj.com/dailyshot/2017/10/24/the-daily-shot-how-close-is-the-next-recession/>.

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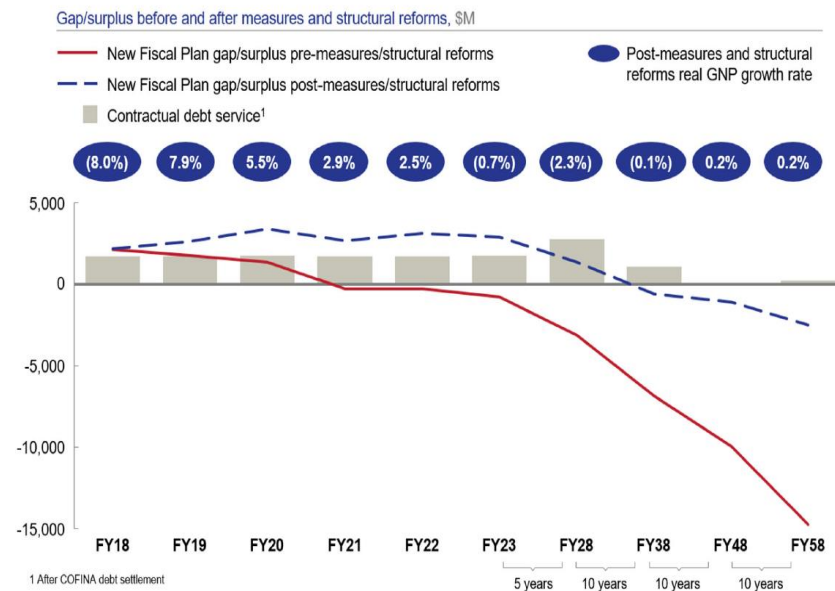
2.3. The Case of Puerto Rico's economy

The vast majority of financial and economic analysts in Puerto Rico understand that the economy of Puerto Rico has virtually no options to regain a sustainable growth path even with the structural reforms promoted by the Financial Oversight Management Board ("*FOMB*"). In fact, the basic outcomes of the certified Commonwealth Fiscal Plan (October 23, 2018), shown at Exhibit 4, page 11, confirmed slower rates of real GNP growth after the end year of last dollar invested by the Federal Relief Funds (Hurricane María).

On the other hand, a September 2018 paper from **Moody's Analytics** is projecting that Puerto Rico's economy will further diminish in a range of 17% to 19.6% from early 2019 to late 2028. Even under three scenarios posted by **Moody's Analytics** the long-run trend is that the real GNP is downward.

Graph 2 - New Fiscal Plan Projected Surplus Before and After Measures and Structural Reforms

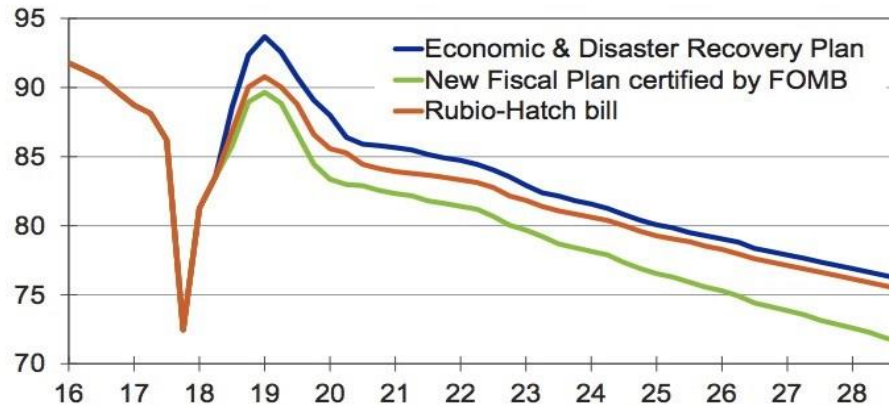
EXHIBIT 4: NEW FISCAL PLAN PROJECTED SURPLUS BEFORE AND AFTER MEASURES AND STRUCTURAL REFORMS



Graph 3 - The Three Policy Scenarios

Chart 20: The Three Policy Scenarios

Puerto Rico, GDP, 2009\$ bil, SAAR



Sources: BEA, Planning Board of Puerto Rico, Moody's Analytics

The secular stagnation thesis in Puerto Rico takes *sui generis* effects, though not necessarily for the reasons experienced in countries such as Europe, Japan and the United States. Some of the symptoms and signs of this structural stagnation are the following special conditions:

- The repealed Section 936 of U.S. Internal Revenue Code;
- High levels of structural deficit in the Central Government;
- Liquidity problems of the Government Development Bank, which is fiscal agent, but, also, a borrower entity;
- Total unsustainable debt amounted over \$70 billion of principal, and ratio Debt to GNP over 100%;
- A significant loss of 30% to 35% of the market value of houses, buildings, and real estate, never seen before;
- The degradation to speculative level of bonds of the central Government and almost all major public corporations;
- Closures of three main commercial banks, with a significant reduction in deposits and loans;

- Great migration of human capital that reduces the potential for sustainable growth (130,000 in the last 12 months);³
- Demographic transition with a fertility rate falling, leading to lower birth rates;⁴
- A record-breaking statistic of 270,000 jobs lost between 2006 to 2016, for the whole economy;
- The number of establishments in the construction sector reduced from 4,012 (first quarter 2006) to 1,800 (first quarter of 2016), for a total reduction of 2,212 units (-55.13%);

From 2006 to 2017, the economic behavior has not been compatible to a traditional recession. Since then, the economy of Puerto Rico has shown a non-reversing decline in the GNP as well as the outflow migration levels, with an unforeseen trend towards a recovery process. This non-reversing trend is partially explained by the current behavior or three driver economic variables. The traditional short-term variables -former drivers of economic growth- were: (1) crude oil prices; (2) rate of interest; (3) U.S. economic growth.

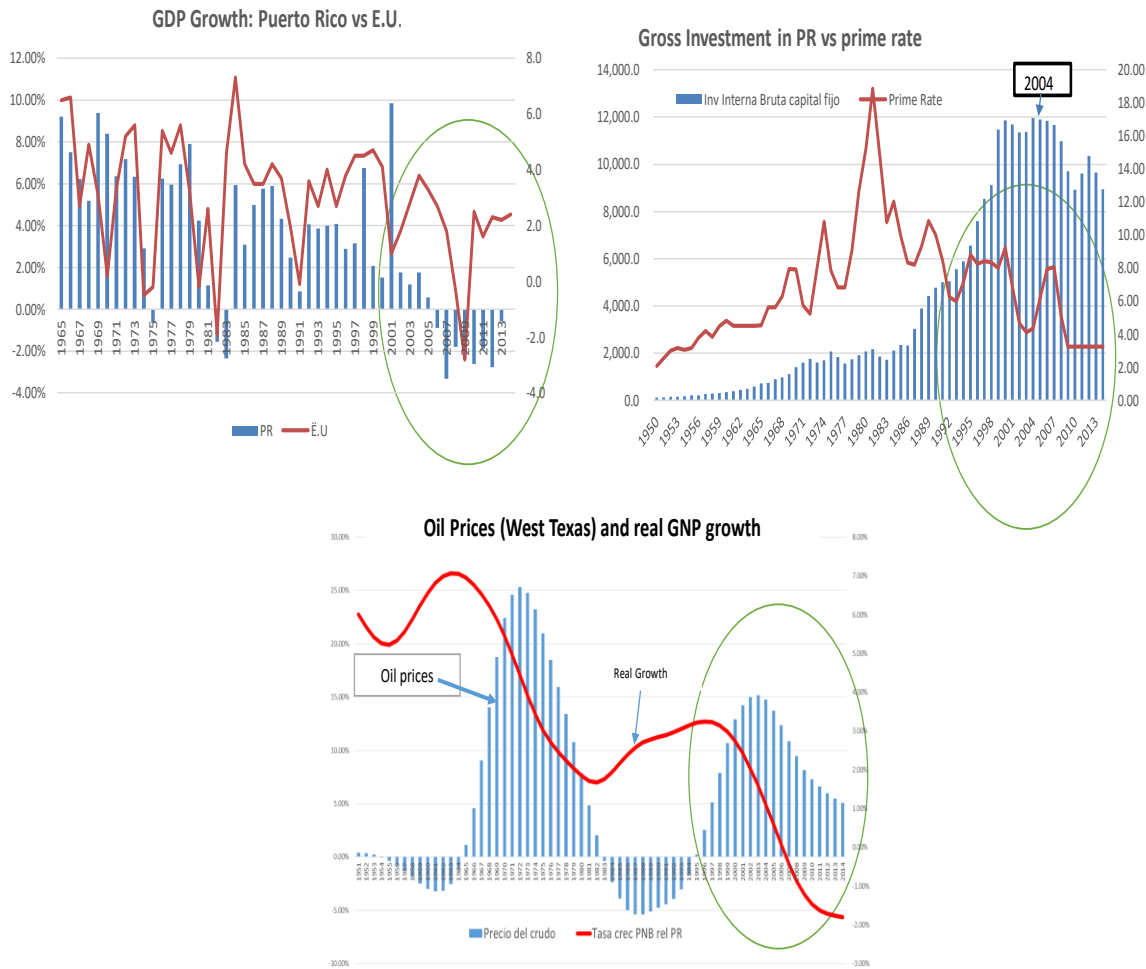
Graph 4 portrays three panels concluding that traditional short-run economic growth drivers of Puerto Rican economy are no longer effective to promote any incipient recovery of the economy (see Panel Graph 4 (three graphs)). Even under a current positive growth of the U.S. economy over 3% on real GDP, lower crude oil prices and lower interest rates, the local economy still stagnated (See Green circles).

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³ The U.S. Census Bureau estimates that the population of Puerto Rico as of July 1, 2018 was 3,195,153 people, 3.9% less than 12 months earlier, according to data released by the Statistics Institute of Puerto Rico. There are 130,000 fewer people in a year. <http://sincomillas.com/en-un-ano-la-isla-pierde-130000-habitantes/>

⁴ *Population and fertility by age and sex for 195 countries and territories, 1950–2017: a systematic analysis for the Global Burden of Disease Study 2017*, Global Health Metrics Vol. 392 (Nov. 10, 2018), available at [https://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736\(18\)32278-5.pdf](https://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(18)32278-5.pdf); See also, Alexa Lardieri, *Fertility Rates Fall as Population Soars*, U.S. News (Nov. 8, 2018), available at <https://www.usnews.com/news/world/articles/2018-11-08/global-population-growing-despite-falling-fertility>

Graph 4 - Three Panels



7

The aforementioned discussion leads to the conclusion that none of the structural reforms proposed by the Fiscal Plans certified by the FOMB addressed the real causes of Puerto Rico's secular stagnation. Thus, there is no reasonable expectation of reversing the constant downturn of the local economy.

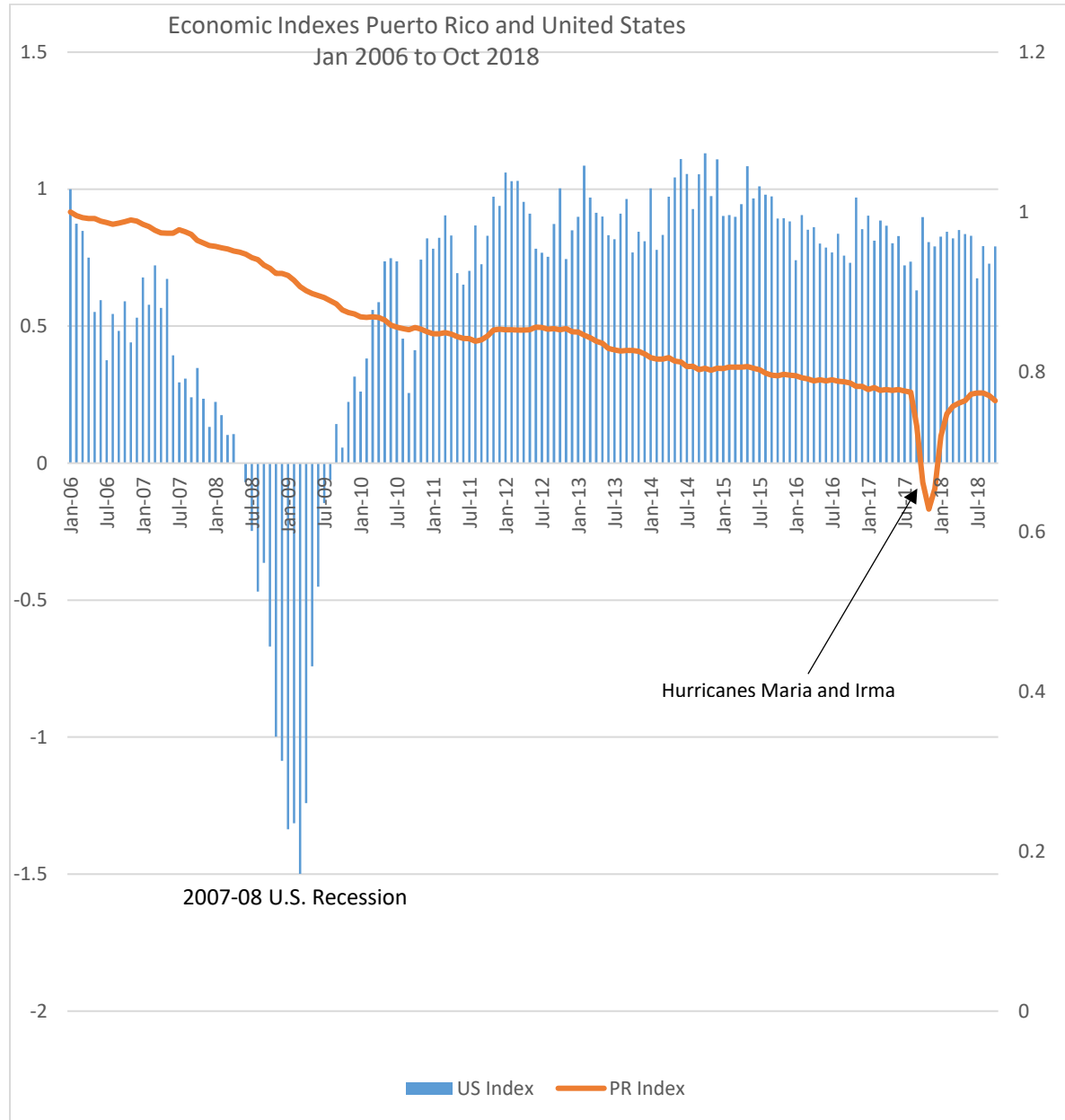
2.4. Puerto Rico's economic growth is disconnected to the U.S.

One of the main overwhelming characteristics of the secular stagnation of Puerto Rican economy would also be demonstrated when the short-term behavior of local economy is not fueled any longer by the United States growth. Graph 5 shows the short-run behavior of both economies. The economic activity index of Puerto Rico is from the Economic Development Bank

of Puerto Rico (“EDB-EAI”) whereas for United States is from the Federal Reserve Bank of Philadelphia. Despite that the EDB-EAI is an indicator of general economic activity, is not a direct measurement of the real GNP or its annual growth rates. However, when the index is annualized, the level of the EDB-EAI is highly correlated with the level of the real GNP using Pearson correlation coefficient. Then, the annual growth rates of Puerto Rico’s index and the real GNP are highly correlated, although the annual growth rate of the EDB-EAI is not equivalent to that for the real GNP.

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Graph 5 - Economic Indexes Puerto Rico and United States Jan. 2006 to Oct. 2018



On the other hand, Graph 6 depicts the annual growth rates of the United States real GDP and Puerto Rican real GNP. There are clearly three stages of this relationship: (1) fiscal years 1950 to 1975, when Puerto Rico's growth overpassed that for the U.S.; (2) years 1976 to 2009, when local rates of growth fluctuated almost identical to the U.S. growth rate; and, (3) years 2010 to 2017, when the U.S. growth rates experienced a higher level than Puerto Rico's growth.

Graph 6 - Annual Growth Rate: Puerto Rico real GNP and U.S. real GDP: 1950 to 2017

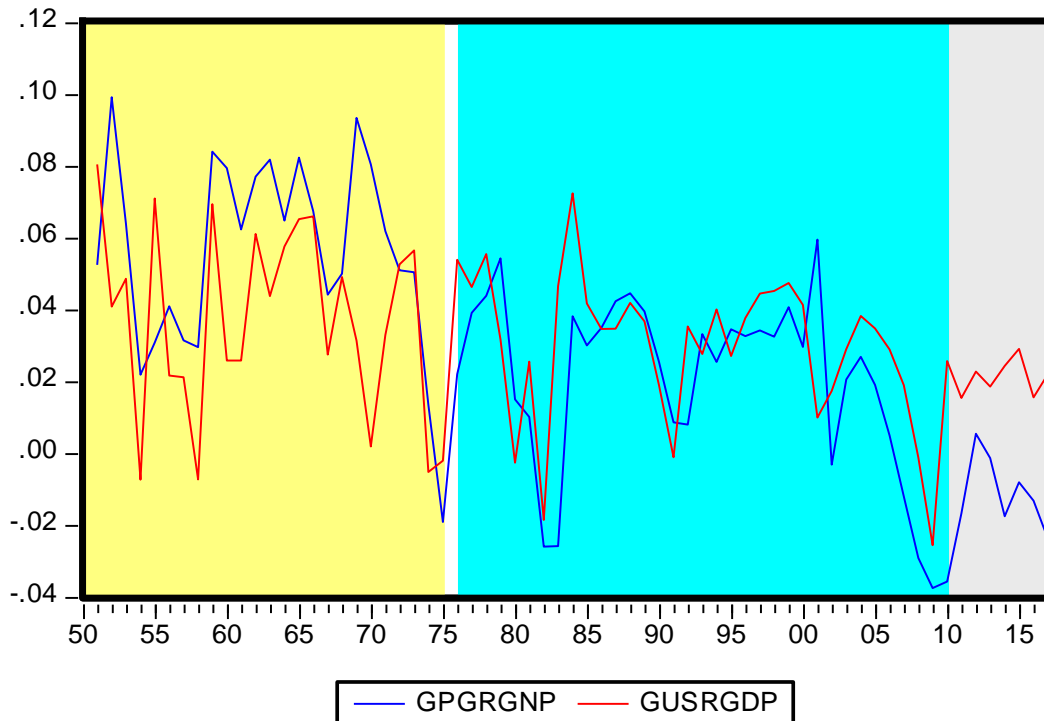


Table 1 shows the slopes (Betas) coefficients and the adjusted R squared from an OLS regression analysis as follows: $GPR = f(GUS)$; where GPR is the real annual GNP growth of Puerto Rico and GUS is the real annual GDP growth of the United States for the three aforementioned periods. We use three lags for the independent variables. The sum of the Betas (only those significant $Pr. < 0.05$) are the elasticity value of the response of Puerto Rican economy to U.S. economy. As can be seen, the period 1950 to 1975, the elasticity or responses of Puerto Rican growth is 0.577; for the period 1976 to 2009, is 1.166; but the last period 2010 to 2017, **the elasticity is zero**. Meanwhile, the adjusted R squared is 0.31 for 1950 to 1975; 0.61 for 1976 to 2009, and 0.05 for 2010 to 2017.

Table 1 - Three Stages of Economic Relationship between Puerto Rico and the United States for 1950 - 1975; 1976 - 2009; and 2010 - 2017

	Adjusted R-squared	Constant	GUS	GUS(-1)	GUS(-2)	Sum betas a/
1950-1975						
Coefficients (Betas)	0.312866	0.031323	0.576891	0.286695	-0.200007	0.576891
Prob.		0.0433	0.0056	0.1622	0.3259	
1976-2009						
Coefficients (Betas)	0.606864	-0.01909	0.538801	0.627315	0.161756	1.166116
Prob.		0.0078	0.0004	0.0003	0.2685	
2010-2017						
Coefficients (Betas)	0.049854	-0.028176	0.235029	0.479282	0.119944	0
Prob.		0.3764	0.8574	0.2218	0.7059	
a/ Only those Betas significant Prob. , < 0.05						

Source: USA-BEA and Puerto Rico Planning Board

The secular stagnation explains a strong burden of Puerto Rico and U.S. growth gap since 2010 due to, among other, the downturn of fixed investment from the private or public sector; liquidity problems from public corporations; high level of public debt relative to productive assets; the repeal of 936 Section of the Internal Revenue Code at FY 1996 which depleted the investment of main manufacturing industrial sectors in the local economy. It seems to be clear that the conventional linkages between both economies have been vanished due to lower U.S. demand for manufacturing goods from U.S. Multinational Corporations under Section 936; as well as to a huge decline in foreign direct investment also from the U.S. to Puerto Rico. Thus, economic projections based on the close relationship between the U.S. and Puerto Rico economy are no longer valid.

3. The Commonwealth Fiscal Plan

3.1. The Certified Commonwealth Fiscal Plan of October 23, 2018

On October 23, 2018, the Financial Oversight & Management Board ("FOMB") for Puerto Rico certified another fiscal plan for the Commonwealth of Puerto Rico (hence after, CFP). Yet once again, the FOMB and its experts ignored the historical norms and variable behaviors and used arbitrary figures and comparisons. Some comparisons rely upon assumptions about economic agent behaviors of European and Latin American Countries which are not related, in any manner, with their counterparts in Puerto Rico. In this sense, the FOMB discarded the most

probable assumptions based on actual and past results, to embrace untested assumptions arriving to an extremely unempirical relationship of economic variables.

Basically, Puerto Rico is a regional economy —say, a state alike economy— but with no political power to manage independently its monetary policy, maritime laws and regulations, the currency or foreign exchanges; with unrestrictive movements of capital, and labor; and all Federal regulations and laws applied to the everyday life of its citizens. For instance, Congress and the President could unilaterally dictate policy relating to defense, international relations, foreign trade, and investments. Congress could also revoke any insular law inconsistent with the U.S. Constitution. Furthermore, Congress or the President could apply selectively federal regulations to the local economy which may or may not, result in both concessions and revocations of special privileges. These political and economic restrictions are not part of many independent countries of Europe and Latin Americans which were used by the FOMB to develop its economic models and projections.

The Commonwealth and COFINA fiscal plans are based on the following assumptions:

- 1) The economy of Puerto Rico will be boomed due to Federal Relief Funds for Disaster. A significant amount of funds will be granted, over \$62 billion, including private insurance payments, of \$8 billion. However, there is a high level of uncertainty about the magnitude and the dates in which those funds will reach Puerto Rico.
- 2) These funds will fuel the nominal GNP and consumption levels, and also SUT revenue collections. Once again, there is a lot of uncertainty about this conclusion because Federal Funds of Relief are swinging into a pendulum of Federal Politicians and Agencies.
- 3) The FOMB is employing similar logic to Act 154 of 2010 excise taxes to forecast a steep decline in revenue. Act 154 excise taxes are paid by multinationals operating on the island and credited by the U.S. Treasury against certain federal taxes. **This is highly uncertain.**
- 4) SUT collections will be boomed due to high level of forecasted nominal GNP. **This is highly uncertain.**
- 5) Pension liabilities were grossly underestimated.⁵

⁵ Joanisabel González, *Error en el cálculo de las pensiones en el plan fiscal*, Endi.com (Nov. 20, 2018) available at <https://www.elnuevodia.com/noticias/tribunales/nota/errorenelcalculodelaspensionesenelplanfiscal-2460896/>

- 6) The structural reforms, if implemented, will also add economic value to the yearly GNP figures, although positive effects, if any, will be realized 5 years after. **Yet structural reforms are based upon the behavior of independent nations (Spain, Estonia, Peru and Colombia), with sovereign political powers within economic trade blocks or international clusters, that are non-existent in Puerto Rico. According to the CFP ... page 20.**

The timing and impact of **structural reforms** are based on work done by the IMF on similar reforms implemented in Europe (e.g., Spain and Estonia), South America (e.g., Peru and Colombia), among other jurisdictions, utilities reform in Latin America, and broadly accepted metrics for measuring improvement in the World Bank's Ease of Doing Business Rankings. Structural reform benchmarks generally come from nations or jurisdictions without monetary policy options and high informal labor markets, like Puerto Rico. **Labor, energy, and doing business reforms** are projected to increase GNP by **0.95% by FY2023 (Exhibit 10)**. **K-12 education reforms** add an additional 0.01% annual impact beginning in FY2033, resulting in total GNP increase from structural reforms of **1.21% by FY2058**.

- 7) The population will be declining at a -1.0%; fueling the human capital depletion. However, this human capital depletion has further collateral consequences, such as circular negative causation, and it is not addressed by the FOMB. A recent paper by Gluzmann, Guzmán and Stiglitz (2018) stated:

...Puerto Rico's population has declined from approximately 3.8 million in 2000 to a little more than 3.4 million in 2016. Between 2010 and 2016, the annual rate of population contraction exceeded 1%, and reached 1.8% in 2016. A deeper recession – as anticipated by the Board's plan – will further decrease opportunities in the island, fueling more migration to the mainland. And yet the plan assumes that the migration flows will taper off, with the population declining by only 0.2% per year over the 2017-2026 period. This is an unrealistic assumption.

...An intensification of migration outflows as a result of the contractionary effects of the Plan would accelerate the fall in fiscal revenues. Then, to achieve the revenue targets stated in the Fiscal Plan, the adjustments would need to be larger – but that would trigger further contractions in economic activity and would increase the per capita burden for those remaining in the island, leading to a destabilizing dynamic that the Fiscal Plan fails to recognize.⁶

⁶ Pablo Gluzmann, Martin Guzman, and Joseph Stiglitz, *An Analysis of Puerto Rico's Debt Relief Needs to Restore Debt Sustainability*, Espacios Abiertos (Jan. 2018), p. 4. Available at: http://www.shankerinstitute.org/sites/shanker/files/PR_DSA-2018.01%20Guzman%20Stiglitz.pdf. Accessed on November 13, 2018.

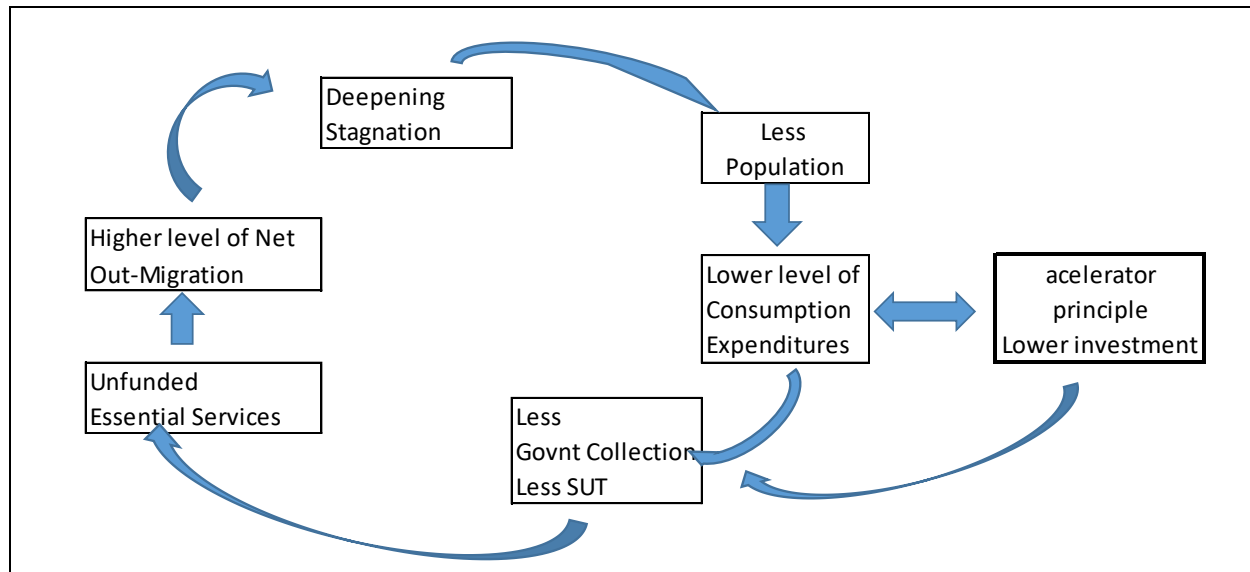
This circular cumulative causation postulated by the aforementioned authors, belongs to Swedish economist Gunnar Myrdal's theory developed in 1956. It is a multi-causal approach where the core variables and their linkages are complex and delineated. The idea behind it is that a change in one form of an institution will lead to successive changes in other institutions. In **American Dilemma** (pp .75-78); and 207-209) Myrdal argues:

...If either of the factors changes, this will cause changes in the other factor, too, and start a process of interactions when changes in one factor will continuously be supported by the reaction of the other factor. The whole system will be moving in the direction of the primary changes, but much further. (Vicious or virtuous cycle). Dynamic causation o causality. Circular and cumulative causation. It is a phenomenon that plays an organizing role in Myrdal's analysis of uneven development. (Palgrave's Vol. I, p.730).

Myrdal's Cumulative and circular Causation: Palgrave's I:732 & 738; II:578; III:582.

Figure 1 illustrates Vicious Circular and Accumulative Causation.

Figure 1 - Vicious Circular and Accumulative Causation



The circle refers to the chain of events in Puerto Rico that reinforce themselves through a type of feedback loop. Let start with population; a lower level of population induces lower consumption expenditures; then lower consumption generates less revenues collection to

Puerto Rico's Treasury Department (which means less SUT) but also, less fixed investment (accelerator principle). Given less government revenues, then we expect less resources to fund essential services, which in turn, will nurture the stagnation process. Then, a depth stagnation will promote higher levels of net migration, and so on.

The FOMB's economic foundations and policies ignored the *Circular Cumulative Causation* theory. Thus, assumptions and projections skipped the pervasive of any initial changes in relevant variables such as population losses and governmental cuts of essential services. This leads to overestimated revenues.

3.2. The Commonwealth Fiscal Plan at the doors of Doomsday

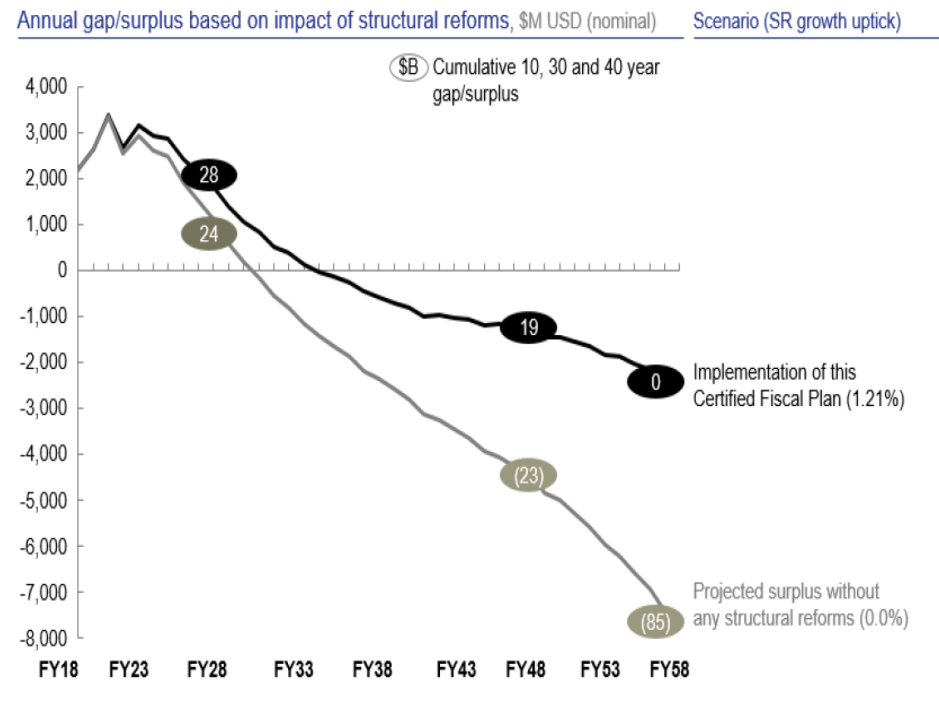
CFP forecasted government revenues over expenses up to FY 2034; after that, annual deficits will begin (See Exhibit 21, p. 31 – Graph 7 shown below). CFP urges that even considering structural reforms, they will not be able to reach successful paths of positive economic growth (Id., p. 31).

Fiscal measures, which grow by their relevant macroeconomic indicator (e.g., revenues by nominal Puerto Rican GNP, expenditures by Puerto Rican inflation). Unfortunately, due to the lack of deep **structural reforms**, while growth reaches a positive trendline in the long-term forecast (e.g., 0.2% real growth from FY44 onward), annual deficits begin in FY2034 and continue until FY2058.

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Graph 7 -Annual GAP/Surplus Based on Impact of Structural Reforms

EXHIBIT 21: ANNUAL GAP/SURPLUS BASED ON IMPACT OF STRUCTURAL REFORMS



Therefore, the Commonwealth of Puerto Rico will experience again a revenue deficit by 2035, regardless of the amount of federal funds of \$6 billion (See Table 2). Although the new Fiscal Plan projects a primary surplus until 2033, it also projects a primary deficit from 2034 to 2058 based on the end of the stimulus effect of the Federal Fund for Disaster Relief and the lack of broader and deeper structural reforms. The structural deficit after 2034 underscores the importance of implementing additional reforms that can generate growth to improve the business environment, attract new investments, create jobs and change the challenging economic and demographic trends underlying Puerto Rico. The Plan is devoid of measures to deal with the fiscal downturn after 2034.

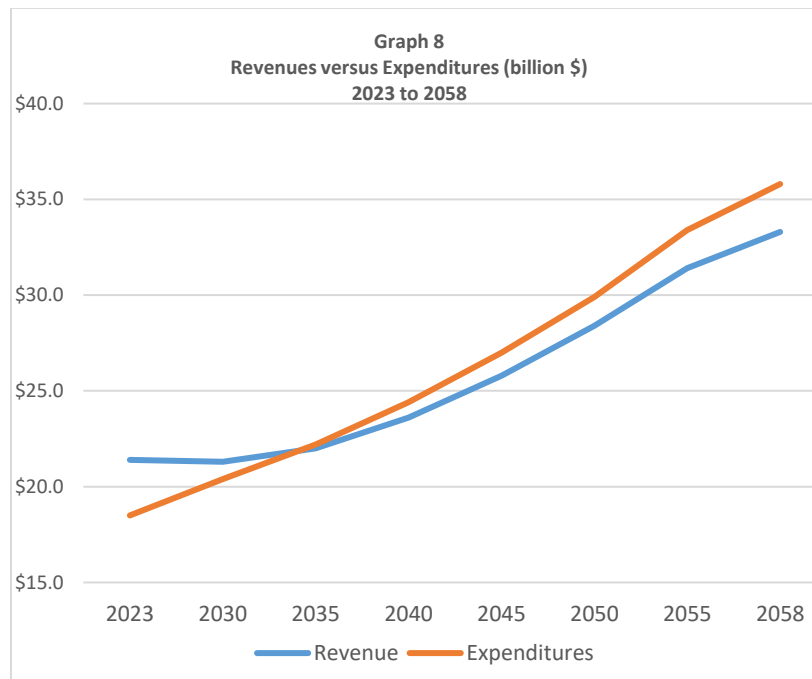
Given the uncertainty of the arrival and timing of the Federal Fund for Disaster Relief, the FOMB has no contingency plan to achieve the economic goals pursued in the Certified Fiscal Plan. Furthermore, the economic uncertainty and the fragility of the assumptions and projections of the FOMB has led to several versions of the Fiscal Plan.

Table 2 - Revenues and Expenditures (billion \$)

	REVENUES			EXPENDITURES		
	Revenue	Comm Rev	Federal Transfers	Expenditures	Comm Funded	Federal
2023	\$21.4	\$16.3	\$5.1	\$18.5	\$13.5	\$5.0
2030	\$21.3	\$15.6	\$5.7	\$20.4	\$14.8	\$5.6
2035	\$22.0	\$15.9	\$6.1	\$22.2	\$16.1	\$6.1
2040	\$23.6	\$16.9	\$6.7	\$24.4	\$17.7	\$6.7
2045	\$25.8	\$18.4	\$7.4	\$27.0	\$19.6	\$7.4
2050	\$28.4	\$20.2	\$8.2	\$29.9	\$21.7	\$8.2
2055	\$31.4	\$22.4	\$9.0	\$33.4	\$24.2	\$9.2
2058	\$33.3	\$23.7	\$9.6	\$35.8	\$26.0	\$9.8

Source: Commonwealth Fiscal Plan, October 23, 2018

Graph 8 - Revenues versus Expenditures (billion \$) 2023 to 2058



Source: Commonwealth Fiscal Plan, October 23, 2018

Furthermore, the amazing outcome from the analysis of the CFP is that local economy will be approaching a second bankruptcy-debt restructuring proceeding, because debt services would be defaulted by 2035. By 2035, the deficit will reach \$0.2 billion but debt services would

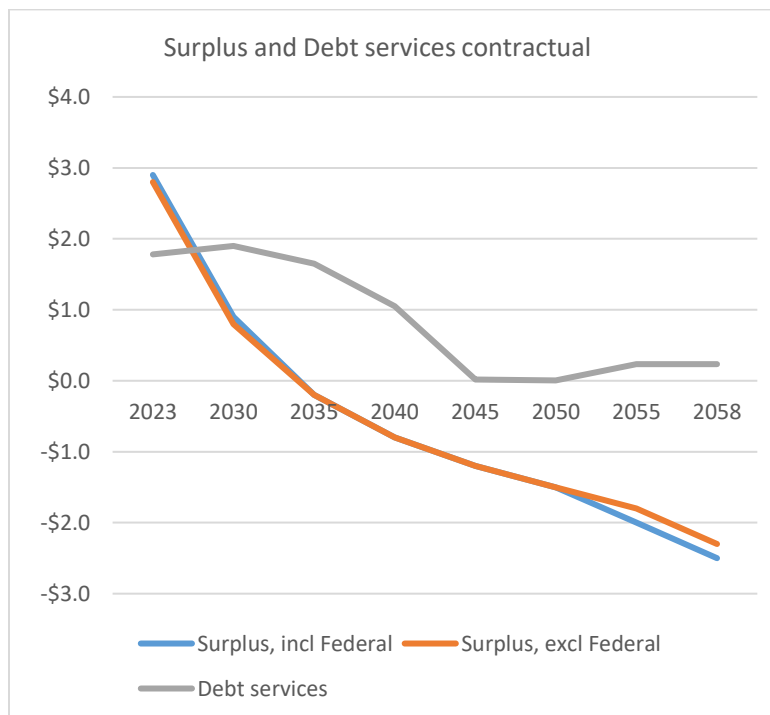
be around \$1.7 billion. One of the FOMB members, Ana Matosanto stated very clearly that ***"...Frankly I do not like this Plan, I think none of us likes it. The Plan will not manage to reduce the deficit, it will not achieve that the economy grows in a sustained way and it puts into effect cuts "very deep".*** This clearly recognizes the plan is a failure.

Table 3 - Surplus, Deficit and Debt Services

Surplus, Deficit and Debt Services, in billions \$			
	Surplus, incl Federal	Surplus, excl Federal	Debt services
2023	\$2.9	\$2.8	\$1.8
2030	\$0.9	\$0.8	\$1.9
2035	-\$0.2	-\$0.2	\$1.7
2040	-\$0.8	-\$0.8	\$1.0
2045	-\$1.2	-\$1.2	\$0.0
2050	-\$1.5	-\$1.5	\$0.0
2055	-\$2.0	-\$1.8	\$0.2
2058	-\$2.5	-\$2.3	\$0.2

Source: Commonwealth Fiscal Plan, October 23, 2018

Graph 9 - Surplus and Debt Services Contractual



Source: Commonwealth Fiscal Plan, October 23, 2018

4. The Sales Tax Revenue Bonds (COFINA Bonds)

Puerto Rico's oversight board will countenance too much debt service and too much austerity because of rosy scenario economics and excessive faith in structural reform.

Lawrence Summers, MIT Professor of Economics and former President of Harvard.

4.1. The Historical Background of Sales and Use Tax (SUT) and COFINA debt

Since the inception of the SUT in November 2006, the local Legislature and Government signed the creation of COFINA, a public corporation whose unique purpose was to issue bonds to refinance the so-called extra-constitutional debt. According to the Web page of COFINA:

The Puerto Rico Sales Tax Financing Corporation (by its Spanish acronym, COFINA) is an independent instrumentality of the Commonwealth of Puerto Rico, created by Act No. 91 of May 13, 2006, as amended, for the specific purpose of financing the payment, retirement or defeasance of certain debt obligations of the Commonwealth of Puerto Rico outstanding as of June 30, 2006, which were payable to the GDB and the Puerto Rico Public Finance Corporation (PFC) and were previously payable solely from government budgetary appropriation. COFINA provided a definite and secure repayment mechanism of some \$6.8 billion in debt that previously lacked a source of repayment.⁷

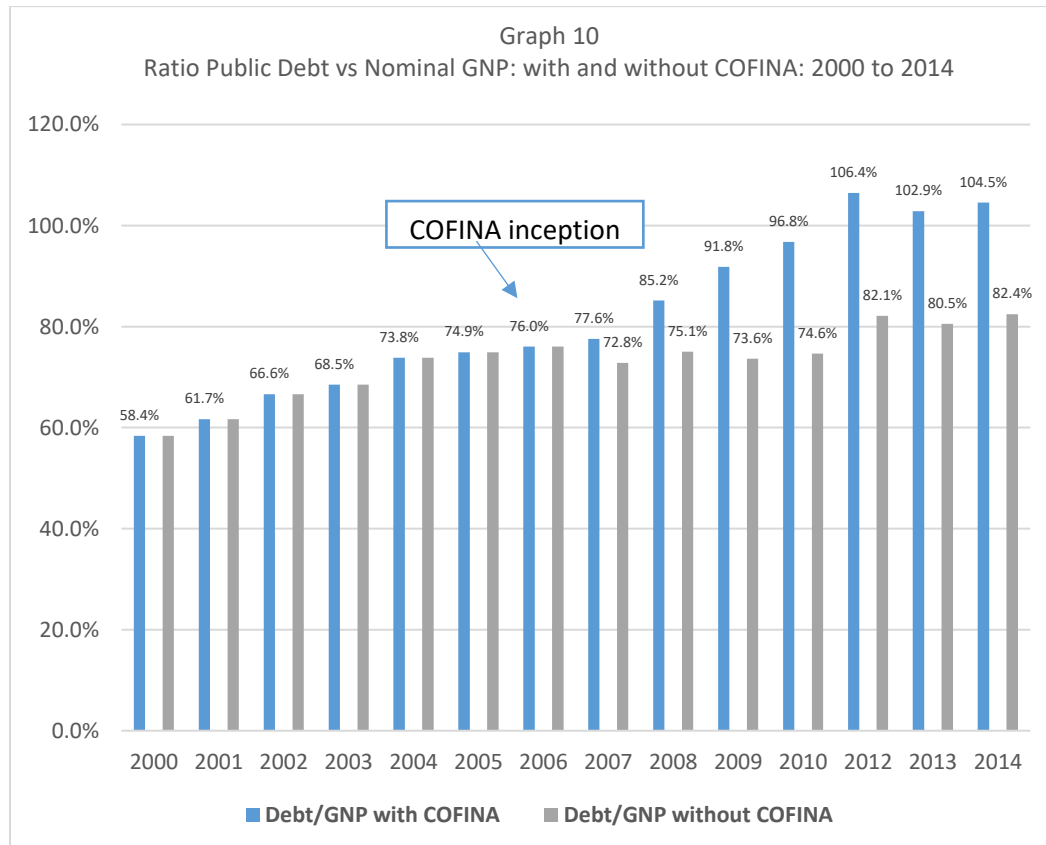
The bonds issued by COFINA were backed by the Sales and Use Tax (SUT), originally set at 7% but eventually rose to 11.5% (July 2015). COFINA's main objective was driven to finance the operational expenses of a group of governmental agencies, most of them, under operational deficit, but also to provide liquidity for the Commonwealth of Puerto Rico to repay certain debt obligations to the Government Development Bank. The COFINA bonds are issued under resolutions by the corporate Board of Directors and will be payable from and secured by a security interest created by the Resolution in a specified portion of the created SUT called "**Pledged Sales Tax**". Act 91 of 2006 created a *Dedicated Sales Tax Fund*, to be held and owned by COFINA separate from the General Fund of the Commonwealth Government.

⁷Government Development Bank for Puerto Rico, *Investor Resources, Puerto Rico Sales Tax Financing Corporation (COFINA)*, available at http://www.gdb.pr.gov/investors_resources/cofina.html. Accessed on November 13, 2018.

It is paramount important to realize that throughout the years, COFINA became the largest bond issuances of the Commonwealth of Puerto Rico. COFINA accounted for approximately one quarter of the total bond debt that Puerto Rico now needs to restructure. Total amount reached a principal of \$17.5 billion, regardless the issue of Capital Appreciation Interest structure for most of issuance bonds. Meanwhile, COFINA nurtured the economic crisis and the unsustainability of debt. COFINA confined the economy of Puerto Rico to a Debt/GNP ratio over the unit, fueling the economic crisis and a debt unsustainability. The explosion in Puerto Rican debt is clearly illustrated in Graph 10. Between 2006 and 2017, COFINA alone issued \$17.5 billion in debt. Various public corporations and entities had been issuing their own bonds, all of which ballooned over this period. Meanwhile, general obligation bonds only increased from \$10.4 to \$13.3 billion.

Since COFINA's inception, the ratio Total Debt/GNP rose from 76% to over 100%, reaching 104.5% by 2014. Without COFINA, debt ratio would be lower, say, 80% range.

Graph 10 - Ratio Public Debt vs. Nominal GNP: with and without COFINA: 2000 to 2014



Source: Government Development Bank and Economic Appendix of Planning Board.

Table 4 shows the SUT's structure for FYs 2007 to 2018; FY 2019 runs from July to October 2018. SUT is the main source of payment of COFINA's debt service.

- 1) By July 2015, the tax rate increased from 7.0% to 11.5%; 10.5% goes to the Commonwealth General Fund;
- 2) COFINA allowances have increased from 2010 to 2018 from \$550 million to \$753 million;
- 3) The General Fund decreased from 2008 to 2015 from \$911 million to \$626 million; but afterward, it increased to \$1.7 billion by 2017, due mainly to the tax rate increase to 11.5%.

Table 4 - Sales and Uses Taxes: FY 2007 to 2018 (000 \$)

Fiscal Year	SUT total	COFINA	General Fund	Others	SUT total	COFINA	General Fund	Others
2007	714,000	129,700	582,560	1,740	100.0%	18.2%	81.6%	0.2%
2008	1,143,599	229,359	911,000	3,240	100.0%	20.1%	79.7%	0.3%
2009	992,834	192,400	797,194	3,240	100.0%	19.4%	80.3%	0.3%
2010	1,093,588	550,000	540,348	3,240	100.0%	50.3%	49.4%	0.3%
2011	1,107,077	569,521	531,837	5,719	100.0%	51.4%	48.0%	0.5%
2012	1,141,432	595,166	540,026	6,240	100.0%	52.1%	47.3%	0.5%
2013	1,162,169	619,000	539,929	3,240	100.0%	53.3%	46.5%	0.3%
2014	1,242,227	643,731	595,256	3,240	100.0%	51.8%	47.9%	0.3%
2015	1,417,008	669,480	626,253	121,275	100.0%	47.2%	44.2%	8.6%
2016	2,376,840	696,259	1,559,627	120,954	100.0%	29.3%	65.6%	5.1%
2017	2,548,021	724,108	1,700,081	123,832	100.0%	28.4%	66.7%	4.9%
2018	2,522,216	753,074	1,645,802	123,340	100.0%	29.9%	65.3%	4.9%
2019 a/	928,905	485,933	398,796	44,176	100.0%	52.3%	42.9%	4.8%

a/ July 2018 to October 2018

However, by 2014, the financial capability of Puerto Rico to pay its debt became uncertain, and thereby, Agencies of Credit Rating began to downgrade the bond ratings. Since Puerto Rico had no legal path to bankruptcy because it is a territory of U.S., hedge funds stepped in and started buying discounted bonds, which were trading at the time as low as 30 cents on the dollar. In 2014, it was estimated that hedge funds owned about 24 percent of the total debt. By 2015, that number already had jumped to 50 percent. Bond yields on Puerto Rico increased to 11 percent from under 5 percent by 2006, making it even harder for Puerto Rico to finance

governmental expenses from future issuances. Despite many attempts to cut spending, Puerto Rico was projected to run out of cash by the end of 2015 at the latest. On June 2014, the local government passed a bill to create the Public Corporation Debt and Enforcement and Recovery Act (Recovery Act). This corporation aimed to a restructuring process similar to the U.S. Chapter 9 bankruptcy Laws, allowing to create a path for Puerto Rico's public corporations to restructure their debt and help the government to remain solvent. This perhaps would have allowed the restructuring of about \$43 billion out of the \$74 billion of total debt. COFINA and General Obligations Bonds (GOB) would be outside of the scope of the bill. However, the U.S. Supreme Court declared the act unconstitutional, based on federal preemption.⁸

4.2. Comparing Fiscal Plans of COFINA

COFINA's fiscal plans were first unveiled on September 7, 2018; and the most recent, on October 18, 2018. The time range considered is from FY 2018 to FY 2023. The latest plan is clearly too optimist *vis a vis* the previous one. To begin with, the Disaster Relief Fund rocketed from \$53.9 billion to \$69.3 billion for a growth rate of 28.4%. Therefore, real GNP growth, especially from years 2019 to 2020 depicted a premium rate between 2% and 3% points; then after, both plans equated growth rates. Notwithstanding, population changes show a higher level for years 2021, 2022 and 2023 by 14,000; 26,000 and 38,000, respectively. This result is surprising since the real growth, even with Disaster Relief Funds, exhibits a decline growing trend values; that is, there is a contradictory empirical result since the level of population and GNP growth should move *pari passu*.

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⁸ *Puerto Rico v. Franklin*, 579 U.S. ____ (2016)

Table 5 - COFINA Fiscal Plans: Sept. 7, 2018 and Oct. 18, 2018

Sept 7, 2018		COFINA FP		
	Real GNP growth	Disaster Relief	Population	SUT Post Meas
2018	-7.6	\$12,006	3,169	\$2,512.0
2019	4.8	\$9,824	3,110	\$2,639.0
2020	2.8	\$8,796	3,063	\$2,760.0
2021	2.6	\$9,174	3,022	\$2,857.0
2022	2.0	\$8,992	2,985	\$2,944.0
2023	0.3	\$5,153	2,952	\$2,956.0
		\$53,945	3,050	\$2,778.0

Oct 18, 2018		COFINA FP		
	Real GNP growth	Disaster Relief	Population	SUT Post Meas
2018	-8.0	\$12,976	3,165	\$2,512.0
2019	7.8	\$12,855	3,109	\$2,732.0
2020	5.5	\$14,311	3,069	\$2,939.0
2021	2.9	\$11,823	3,036	\$3,056.0
2022	2.5	\$11,696	3,011	\$3,176.0
2023	-0.7	\$5,623	2,990	\$3,176.0
		\$69,284	3,063	\$2,931.8

Differences				
	Real GNP growth	Disaster Relief	Population	SUT Post Meas
2018	-0.4	\$970	-4.0	0.0
2019	3.0	\$3,031	-1.0	93.0
2020	2.7	\$5,515	6.0	179.0
2021	0.3	\$2,649	14.0	199.0
2022	0.5	\$2,704	26.0	232.0
2023	-1.0	\$470	38.0	220.0
		\$15,339	13.2	\$153.8

Note: Real GNP growth at percentage; other figures are millions \$, except Population at thousand persons

Source: *COFINA Fiscal Plans*

Table 6 depicts the forecasted SUT figures for FYs 2019 to 2023 published at COFINA Fiscal Plans. Once again, the Fiscal Plan from October 18, 2018 is more optimist than the first when annual average change is \$132.8 million relative to the previous one of \$88.8 million.

Table 6 - Forecasted SUT (million \$)—COFINA Fiscal Plans

Millions \$	COFINA FP	COFINA FP
Fiscal Years	Sept 7, 2018	Oct 18, 2018
2018	\$2,512.0	\$2,512.0
2019	\$2,639.0	\$2,732.0
2020	\$2,760.0	\$2,939.0
2021	\$2,857.0	\$3,056.0
2022	\$2,944.0	\$3,176.0
2023	\$2,956.0	\$3,176.0
Average Changes	\$88.8	\$132.8
Avg Growth rates	3.54%	5.29%

Source: *COFINA Fiscal Plans*

On the other hand, the Fiscal Plans focused narrowly over its timeframe range (until 2023) despite that the COFINA Agreement to Bondholders ranged a longer timeframe up to FY 2058. Needless to say, the COFINA Fiscal Plan skipped relevant circumstances beyond the year 2024, especially when most of the Federal Funds for Disaster Relief will be exhausted by that time. The timeframe of the Fiscal Plans and the COFINA Plan are inconsistent, thus fail to establish a strong foundation for its feasibility and the reliability of the projections.

Furthermore, on December of 2018 the government enacted a Tax Reform which reduced the rate to B2B and the SUT rate to 7% for prepared foods (See Table 7). The COFINA Fiscal Plans do not consider the effects of such Tax Reform in the forecasted values.

Table 7 - SUT Initiatives Included in Proposed Tax Reform

EXHIBIT 13: SUT INITIATIVES INCLUDED IN PROPOSED TAX REFORM

Revenue Impact, \$M	FY19	FY20	FY21	FY22	FY23	Total
Revenue Reductions						
Reduction of SUT on Prepared Foods	(79)	(87)	(87)	(87)	(87)	(427)
Phase Out of B2B Tax	(19)	(101)	(169)	(172)	(172)	(633)
Total	(98)	(188)	(256)	(259)	(259)	(1,060)
Tax Initiatives Offsets	98	188	256	259	259	1060
Net Impact	0	0	0	0	0	0

Revenue reduction resulting from the tax reform, of which SUT initiatives are part of, are financed by a variety of offsets, including¹⁸:

- The creation of a minimum flat tax withholding at source regime for self-employed individuals and service based companies
- Expanded usage of corporate and individual alternative minimum taxes to broaden the tax base and combat excessive usage of deductions to lower tax liability
- Reduction in a series of deductions, credits, and cash grants

Source: COFINA Fiscal Plan, September 8, 2018

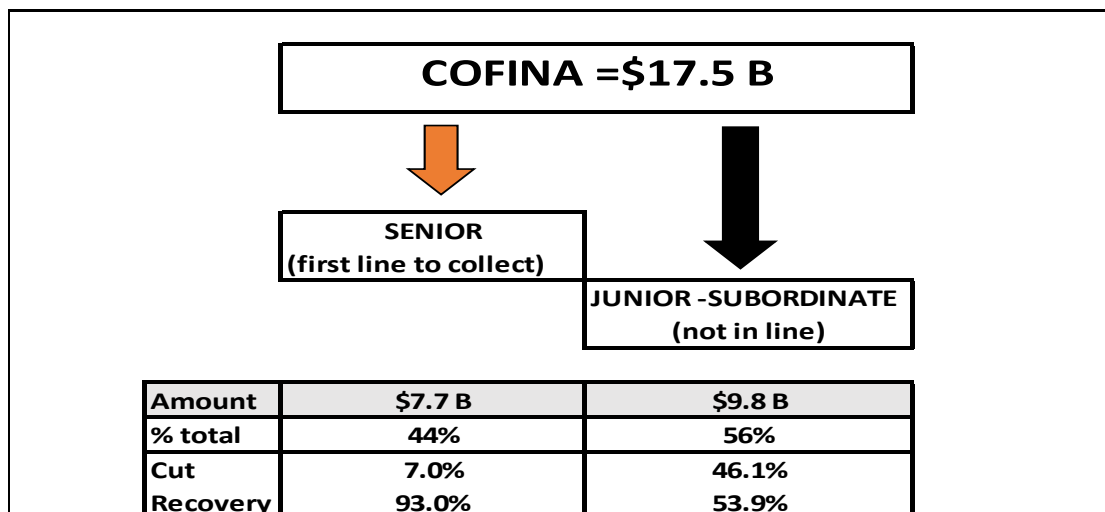
From Table 7 it can be concluded that the Commonwealth will lose \$1,060 millions from FYs 2019 to 2023, which certainly represents less revenue available for funding of essential services. Therefore, this issue raises the need to once again amend the Fiscal Plan soon as the current Fiscal Plan is not feasible.

4.3. COFINA Agreement

The COFINA restructuring agreement was filed on October 19, 2018 in the court overseeing Puerto Rico's debt adjustment proceedings, under the Title III of PROMESA. Such

agreement intends to restructure \$17.5 billion of COFINA debt. The general deal reduces COFINA debt overall by 32% and gives senior bondholders 93% of the value of the original bonds and junior bondholders near 54%.⁹ It also saves Puerto Rico about \$17.5 billion in debt service and enables local retail bondholders in Puerto Rico to receive a significant recovery. The mediation process culminated in the following agreement that forms the basis of the plan of adjustment of debts:

- From the 5.5% portion of the SUT belonging to COFINA, 53.65% will be preserved for the bondholders of COFINA and the rest will be for the Central Government.
- The adjustment plan of COFINA will be effective for the next 40 years.
- Once approved, neither the legislature nor the governor can eliminate the SUT during that period, unless they fulfill some very restrictive conditions established in the agreement.



The COFINA Agreement has been questioned over its sustainability of the debt restructuring for Puerto Rico's sales tax-backed bonds (COFINA) and on the unreasonable negative economic and social consequences like the impairment of the resources available to pay

⁹ In a recent study of Puerto Rico's debt, Columbia University economists and Noble prize-winner Joseph Stiglitz and his co-authors concluded that "the most conservative estimate of the territory's relief needs" would include full cancellation of interest payments on bonds "plus 50 to 80 percent of face value reduction." Pablo Gluzmann, Martin Guzman, and Joseph Stiglitz, *An Analysis of Puerto Rico's Debt Relief Needs to Restore Debt Sustainability*, Espacios Abiertos (Jan. 2018), p. 4. Available at: http://www.shankerinstitute.org/sites/shanker/files/PR_DSA-2018.01%20Guzman%20Stiglitz.pdf. Accessed on November 13, 2018.

for essential services and pensions. Some economists understand that the Island's economy has assumed all the risks to Puerto Rico. Some issues of the Plan:

1. The adjustment plan of COFINA will be effective for the next 40 years. This is a very long range of time frame, and too many unforeseen circumstances will be coming.
2. A 40 years long run forecast of SUT collection from the FOMB, is highly uncertain, because Puerto Rico's economy faces an economic secular stagnation.
3. It saddles Puerto Rico with escalating debt payments for the next 20 years, even though the economy has been in a decade-long slump.
4. Commonwealth Fiscal Plans forecasted a primary deficit for year 2035; rising the awareness of defaulting debt payment and again, forcing new cuts to public pensions and essential services.
5. The growth rates of nominal GNP and Consumption Expenditures have the long-run capacity to repay debts. But they are unrealistic and so far, extremely optimistic. Overly optimistic assessments of those prospects are a sure recipe for failure.
6. Influx of Federal Disaster Relief are for 5 years while Medicaid funding is temporarily for the next two years. Most of those funds have been assigned to non-local firms capturing over 90% of them.¹⁰
7. It would be irresponsible to expect these benefits to last and support a rising debt service burden for over 40 years. Indeed, federal budget transfers are due to fall off a cliff in just five years. Moreover, the island's economic growth will be impeded by poor demographics, as the economically active population will likely continue to move to the mainland in search of better opportunities.
8. With Puerto Rico's limited ability to repay at the long run, a generous agreement with one set of bondholders necessarily reduces what the Commonwealth can reasonably offer to other bondholders and claimants and to cover for essential services and retirees. The sustainability of Puerto Rico's debt restructuring needs to be assessed comprehensively, not by looking narrowly at each piece of the bigger puzzle.
9. Reducing COFINA's payments to its bondholders would result in the availability of more resources to the General Funds of the Commonwealth, and consequently, more revenues that could be allocated to finance essential services for the population and the pension liabilities.

¹⁰ Center of New Economy study reports that only 10% of FEMA funds have been assigned to locally entities while the remaining to foreign entities.

10. The FOMB insists in the conventional assumption that the U.S. economy is the main driver of Puerto Rico's economic growth which is no longer valid nor realistic due to secular stagnation.

5. The Undefined Essential Services

PROMESA, signed by the U.S. Congress and the President by June 2016, addresses the general issue of restoring the economic growth and to encourage the Commonwealth financial feasibility seeking for the stabilization of the Puerto Rican economy at the long-run. One of the main concerns of PROMESA Law is the previous definition of the essential services (See Section 201(b)(1)(N)), any time before the debt restructuring process; that is to ensure the essential services to the community. Once again, PROMESA required that every approved (certified) Fiscal Plan shall.....Ensure the funding of essential public services.

However, every certified Fiscal Plan since the inception of PROMESA, never presumed that all non-debt expenses should be paid before any payments allocated to debt services. In this matter, the FOMB and the Government of Puerto Rico disputed over that issue because none of them defined what essential services and non-essential services are. Regardless of the outcome of that dispute, the Certified Fiscal Plans over passed the requirements of Section 201(b)(1)(N) of PROMESA. The Fiscal Plans did not attempt to differentiate between expenses for essential services and expenses for non-essential services. Moreover, the term essential services is not even mentioned nor defined in the Fiscal Plans.

Since the FOMB and the certified Fiscal Plans do not distinguish between essential and non-essential services, we rise the following question... how can it meet the requirements of PROMESA? The International Labor Organization (ILO) defined essential services as “...*services by means services, by whosoever rendered, and whether rendered to the Government or to any other person, the interruption of which would endanger the life, health or personal safety of the whole or part of the population.*”¹¹ ...Essential services are the services and functions that are

¹¹ International Labor Organization, available at <https://www.ilo.org/legacy/english/dialogue/ifpdial/IIg/ch5/ex4.htm>. Accessed on November 13, 2018.

absolutely necessary, even during a pandemic. They maintain the health and welfare of the municipality. Without these services, sickness, poverty, violence, and chaos would likely result."

ILO provides some examples of Essential services:

- Executive governance;
- Healthcare;
- Fire and police protection;
- Provision of clean water;
- Basic sanitation, including sewage and garbage removal;
- Maintenance of communication infrastructure (e.g., telephone system, radio, internet) Maintenance of utilities (e.g., gas and electricity);
- Provision of food and other essential goods;
- Transportation;
- Road maintenance/repair;
- Banking;
- Payroll departments;
- Tax collections;

On the other hand, non-essential services are services which are not essential to the surveillance of the community and could be stopped during a pandemic. Some examples are:

- Tourism
- Culture/entertainment
- Libraries
- Retail stores
- Barber shops

Christine Sgarlata-Chung (2015)¹² defined the role of local governments regarding how they build, pay for, and provide the public services and infrastructure in the community.

¹² Christine Sgarlata Chung, *Municipal Bankruptcy, Essential Municipal Services and Taxpayers' Voice*, Widerner Law Journal Vol. 24, Issue 1 (2015).

Governments build local roads, water and sewer facilities, hospitals, schools, and other public infrastructure. They also employ local police officers, fire fighters, teachers, and other public health and safety workers. Furthermore, they assess property and use taxes, issue bonds, seek funding from higher levels of government, and raise revenues to pay for it.

The main purpose of a local government is to use its resources to finance public good which is the heart of the pact between government and those governed. Governments that neglect these covenants are faced with fiscal distress and legal, political, and economic concerns and disputes. State and federal laws governing financially distressed and insolvent municipalities offer a partial roadmap for sorting out competing stakeholders claims during periods of fiscal strain. Such laws should also pursue the principle of protecting essential services.

The aforementioned author quoted the opinion of Judge Stephen Rhodes in the context of Detroit's municipal bankruptcy, who stated that the "purpose of municipalities (i.e., police protection, fire protection, sewage, garbage removal, schools, hospitals) is to provide **essential services to residents**." Furthermore, Judge Rhodes stated that "*[t]he purpose of Chapter 9 is to allow municipalities the opportunity to remain in existence through debt adjustment and obtain temporary relief.*"

Sgarlata-Chung stated that when the city of Harrisburg, Pennsylvania, was placed in receivership following Pennsylvania's declaration of fiscal emergency, the receiver commented, in announcing the city's intention to miss payments due on certain bonds, that his **"first priority as receiver is to ensure that vital and necessary services such as police and fire are maintained within Harrisburg during the state of fiscal emergency."** For the city of Stockton in California, the Department of Police had to be decimated and its crime rate soared in the wake of financial crisis. In the case of Detroit's bankruptcy, Judge Rhodes cited overwhelming evidence of the city's service delivery insolvency, including rampant crime, blight, poverty, and dysfunction, in support of his conclusion that the city was insolvent. Then, the Judge's opinion signals to stakeholders that the public health and safety needs of residents of the city of Detroit must be addressed during the debt adjustment process. Municipalities have a fundamental obligation to provide essential services to the residents, and the goal of municipal bankruptcy is to get municipal

debtors back on their feet so that they can provide these essential services. Therefore, the taxpayers' interest in these essential services must be part of the debt adjustment considerations from the start. (Sgarlata-Chung, 2015).

More than one year in the Commonwealth's bankruptcy proceedings, Puerto Rico is still without a definition of essential services. Therefore, with no systematic definition for essential services, the scarce funds allocation will favor the bondholders instead of the local community. Some services will be cut—maybe ones that are needed—and some services that are not needed will continue to be provided. In this way, the FOMB, sometimes backed by local government, proposed to cut close to one-third of the government budget in the coming six years. The cuts would include a significant reduction in subsidies to the municipal governments, an increase in the cost per credit at the University of Puerto Rico, and a 10 percent reduction across the board in government pensions.

The October 2018 Commonwealth Fiscal Plan states at Chapter 11 and 17, some sort of essential services analysis; however, the assessment is based upon a downsizing approach.

*.....the right-sized Government of the future should wherever possible reflect mainland U.S. benchmarks in terms of both number of agencies and size of agencies themselves to **deliver services in as efficient a manner as possible**. As part of the new Government model, the Government should **consolidate the 114 agencies into no more than 35 agency groupings and independent agencies**.*
Page 71.

Once again, the Fiscal Plan fails to establish a methodology to refocus essential services, because its main concerns were directed towards massive governmental cuts, no matters the net welfare of residents demanding for social services. Keeping in mind that U.S. benchmarks that are applying to Puerto Rico are totally misleading due to the fact that Puerto Rico's level of poverty is the highest among the four poorest U.S. states (See Graph 11); families with children under poverty level and the gap between high income and low income families are overwhelming. Additionally, Hurricane Maria accelerated most of out-migration and human capital depletion, making it even harder for it to regain economic steam. **Then, we raise the following concerns: There is no FOMB's systematic study supporting: 1) the social demand of**

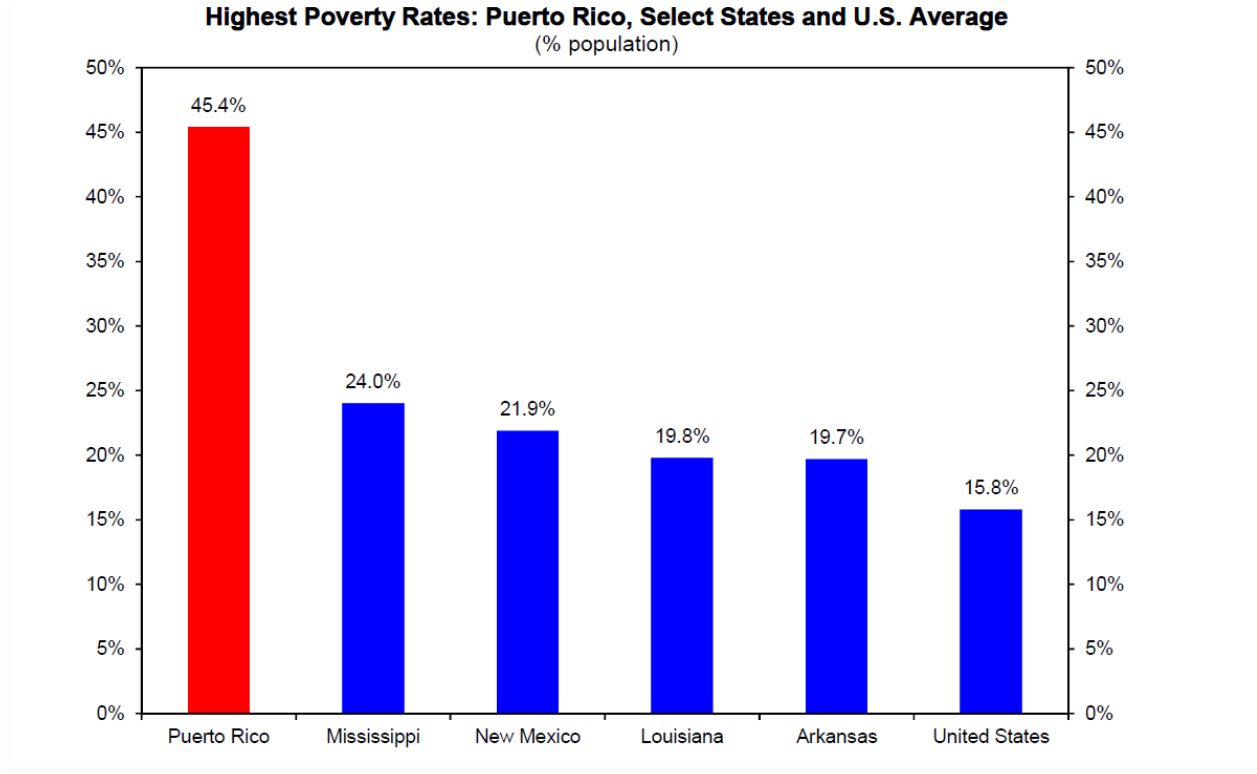
residents' essential services from agencies; 2) the right-sizing of agencies and governmental activity as a function of such social demand from the residents; and, 3) the optimal social rightsizing of the local Commonwealth Government. Without these scientific foundations the assumptions and measures of the Fiscal Plan are arbitrary. Unfortunately, the FOMB is using an accounting approach rather than a socio-economic approach. For example, in the case of the Puerto Rico Police Department, the FOMB reduced the funding for police officer recruitment and operations. A recent study from V2A, reports that Puerto Rico needs at least 11,680 police officers on the streets which represents an 11% increase of active officers.¹³ However, the FOMB's approach has been to reduce funding instead of providing the necessary funds to address the security crisis that Puerto Rico is suffering. For instance, "Puerto Rico has the highest per capita rate in the world of women over 14 killed by their partners."¹⁴ Once again, the accounting approach used by the FOMB will cause dire consequences to the People of Puerto Rico if the COFINA Plan of Adjustment is confirmed.

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¹³ Ricardo Cortés Chico, *The Government is searching a solution for the Police funding*, (December 28, 2018), <https://www.elnuevodia.com/english/english/nota/thegovernmentissearchingasolutionforthepolicefunding-2467923/>

¹⁴ Mehreen Kasana, *Domestic Violence in Puerto Rico May Be Happening Much More Than What Official Reports Say*, (May 8 2018), <https://www.bustle.com/p/domestic-violence-in-puerto-rico-may-be-happening-much-more-than-what-official-reports-say-9029059>

Graph 11 - Highest Poverty Rates: Puerto Rico, Select States and U.S. Average



Source: Laffer, Arthur B. and Stephen Moore HOW CONGRESS CAN SAVE PUERTO RICO FROM INSOLVENCY. 201

Therefore, the inexistent definition of essential services in the Title III case of Puerto Rico, puts the local residents in a helpless state with regard to social services rolled over by the privileges of bondholders and creditors. Obviously, the FOMB's omissions contradict common sense and the judicial concerns of Judges overseeing the Chapter 9 cases of the cities of Detroit and Stockton.

6. Scenarios of Consumption Expenditures and SUT's Collection

The following section attempts to forecast the Consumption Expenditures in Puerto Rico and also develops a time series for total SUT for FY 2019 to 2050. We have to keep in mind that consumption is the fiscal base for the SUT and GNP determines consumption values. Moreover, GNP, prices and the level of population determine consumption, and then, consumption determines the SUT. By 2017, the total SUT's revenues totaled to \$2,548 million but accounted for a 4.1% of total consumption expenditures figure (\$61,563 million).

6.1. Forecasting Models

Forecasting methodology will be performed using Ordinary Least Square Regression Model, from the software E-Views. Variables were recalculating as logarithm terms. The basis equation is to determine consumption nominal expenditures using the following equation:

Consumption Expenditures = f (Trend, GNP, Population, Consumer Prices)

Consumption = Consumption Expenditures from the Planning Board.

GNP = Nominal P.R. GNP (millions \$), from Planning Board.

Population =Population (thousand) from Planning Board and International Data Base, U.S. Census.

Consumer Prices = Index of Consumer Prices from Planning Board (1954=100).

The forecast models will be tested using alternatively three different GNP nominal figures:

- 1) GNPNNOPR = GNP nominal with no growth
- 2) GNPFOMC = GNP nominal estimated by the FOMB
- 3) GNPNONEHALF = GNP nominal with a 1.5% (inflation rate) growth.

Consumer prices index will be considered only when GNP nominal has no growth foreseen.

A brief summary of the three models to be tested is shown below:

Independent Variables					
Model	Trend	CONSUMERPRICE	GNPNOGR	GNPNONEHALF	POPULATION
1	X	X	X		X
2	X			X	X
3	X		X		X

For this paper the following models were tested, as explained below, using the variables as marked in the above table. The reason why three models were used is to increase the possibilities of studying different variables and obtain more reliable results, especially with a 40-year time frame. Conversely, the projections made by the FOMB are based on assumptions of full certainty which is an unreliable methodology.

6.2. Model Estimations

The following section will assess three (3) models using OLS Regression Method.

Model 1

Forecasting assumptions:

- Model sample N= 1950 to 2017
- Assuming nominal GNP will experience zero growth (GNPNOGR), because the variable INDXPRECIOCONS (Consumer prices) will capture inflation rates.
- Consumer prices increasing a 1.5% per year since 2020 to 2050
- Population in thousand persons, forecast from International Data Base.

Model 1: OLS Results

Dependent Variable: LOG(CONSUMPTION)

Method: Least Squares

Date: 12/22/18 Time: 13:00

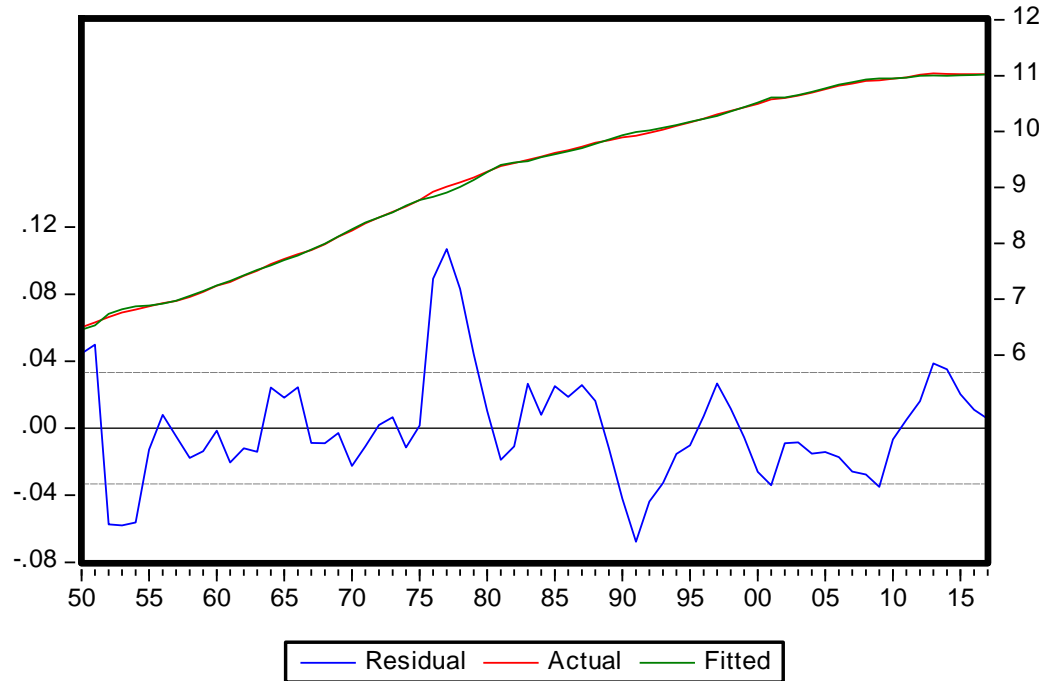
Sample (adjusted): 1950 2017

Included observations: 68 after adjustments

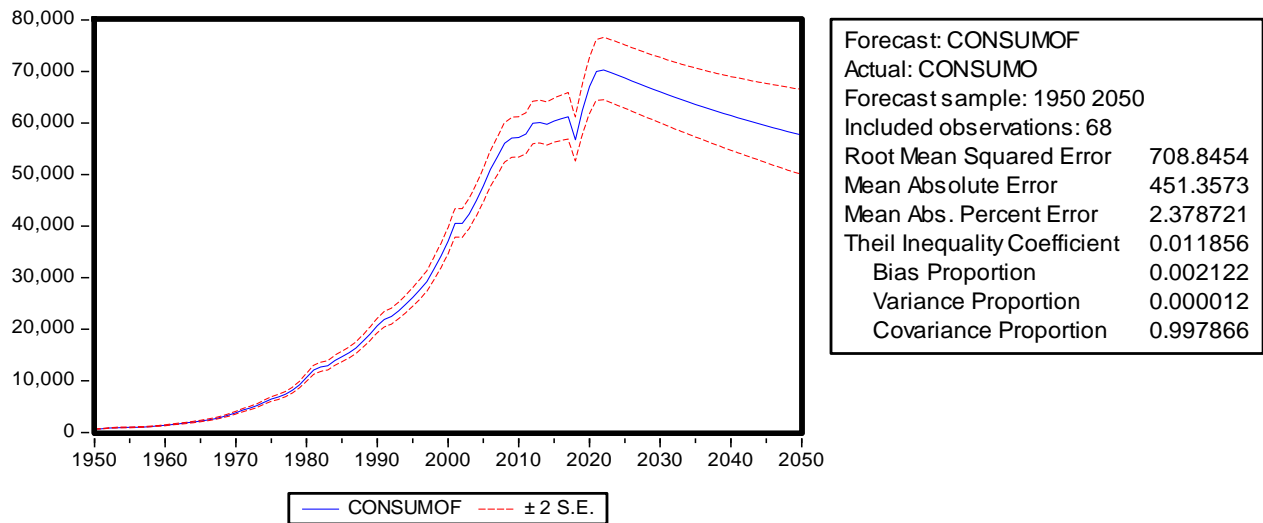
Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-0.060097	1.124452	-0.053446	0.9575
@TREND	-0.019966	0.003509	-5.689943	0.0000
LOG(CONSUMERPRICE)	0.490974	0.046099	10.65053	0.0000
LOG(GNPNNAGR)	1.113722	0.064463	17.27694	0.0000
LOG(POPULATION)	-0.396511	0.210252	-1.885882	0.0639
R-squared	0.999520	Mean dependent var		9.187812
Adjusted R-squared	0.999490	S.D. dependent var		1.471823
S.E. of regression	0.033237	Akaike info criterion		-3.899632
Sum squared residual	0.069595	Schwarz criterion		-3.736433
Log likelihood	137.5875	Hannan-Quinn criter.		-3.834968
F-statistic	32830.64	Durbin-Watson stat		0.587293
Prob(F-statistic)	0.000000			

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Model 1: Residual Chart



Model 1: Forecast Evaluation



Model 2:

Assumptions:

- Model sample N= 1950 to 2017
- Using GNPNFOMB = GNP nominal figure from FOMB's Excel Files.
- Excluding Consumer Prices since GNPNFOMB capture prices movements
- Population in thousand persons, forecast from International Data Base.

Dependent Variable: LOG(CONSUMPTION)

Method: Least Squares

Date: 12/22/18 Time: 13:26

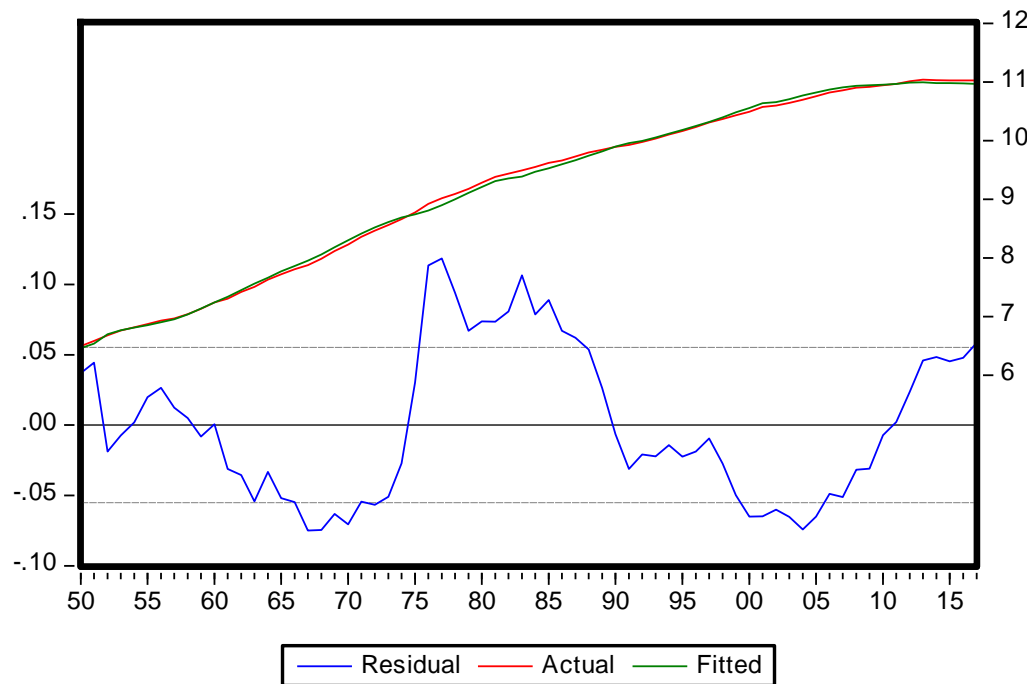
Sample (adjusted): 1950 2017

Included observations: 68 after adjustments

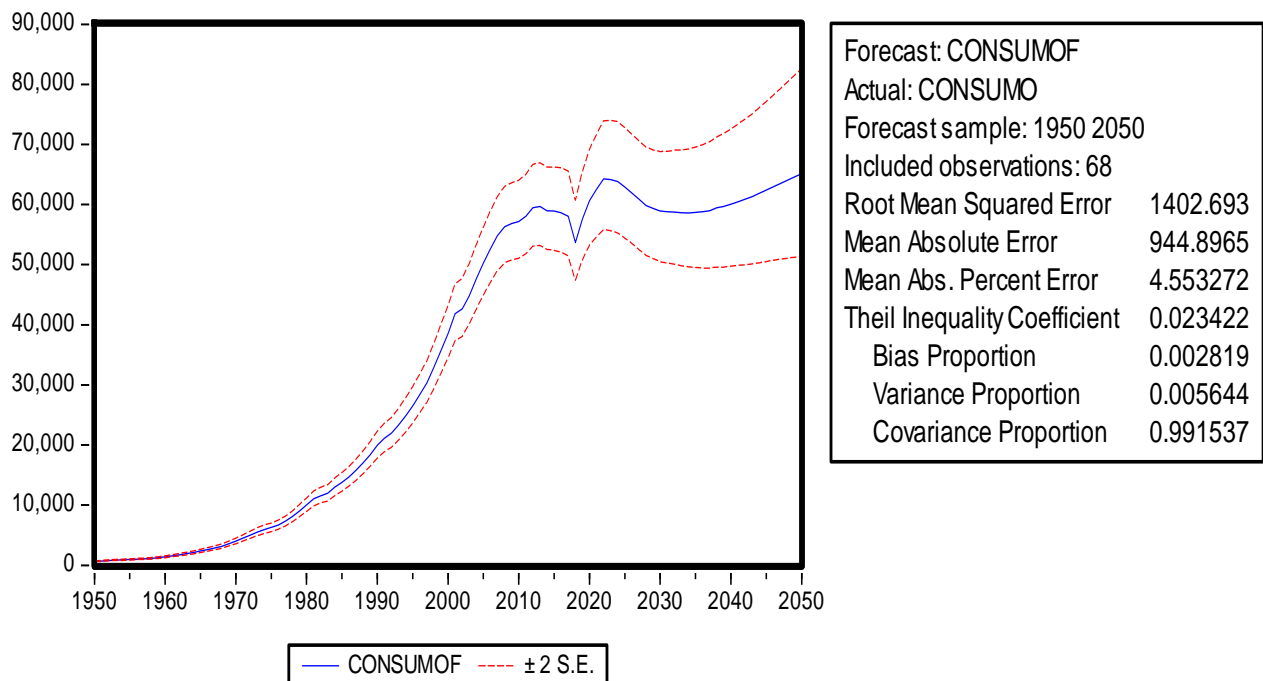
Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-5.125029	1.691800	-3.029335	0.0035
@TREND	3.89E-05	0.004921	0.007907	0.9937
LOG(GNPNFOMB)	0.927194	0.103006	9.001406	0.0000
LOG(POPULATION)	0.706647	0.303793	2.326077	0.0232
R-squared	0.998657	Mean dependent variable	9.187812	
Adjusted R-squared	0.998594	S.D. dependent variable	1.471823	
S.E. of regression	0.055185	Akaike info criterion	-2.899234	
Sum squared residual	0.194904	Schwarz criterion	-2.768674	
Log likelihood	102.5739	Hannan-Quinn criteria	-2.847502	
F-statistic	15865.04	Durbin-Watson stat	0.148467	
Prob (F-statistic)	0.000000			

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Model 2: Residual Chart



Model 2: Forecast Evaluation

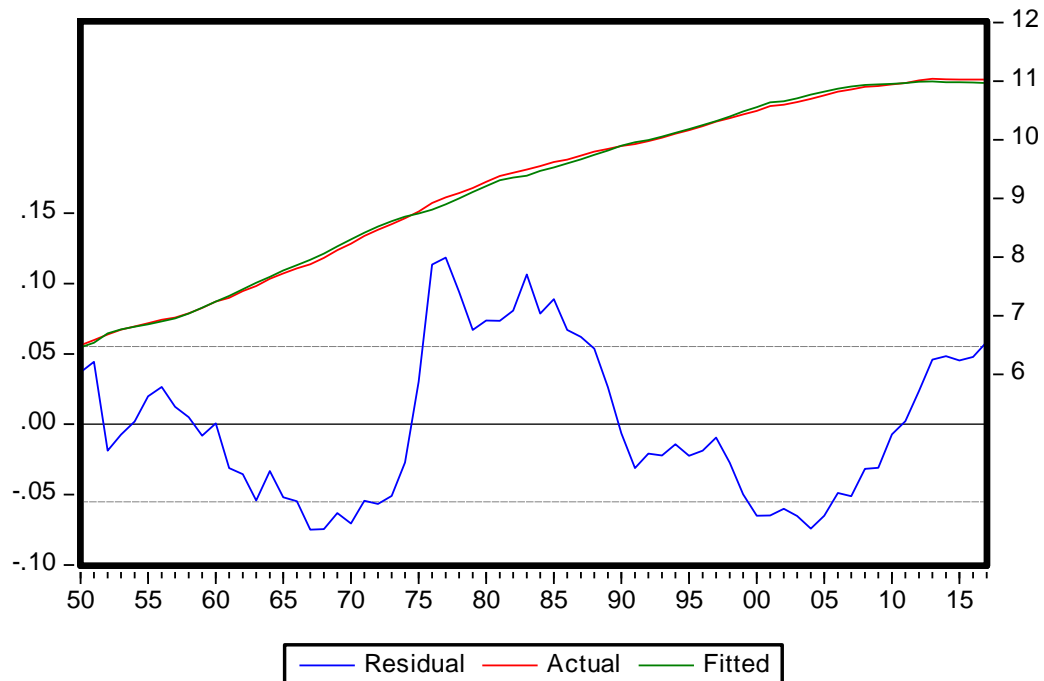


Model 3

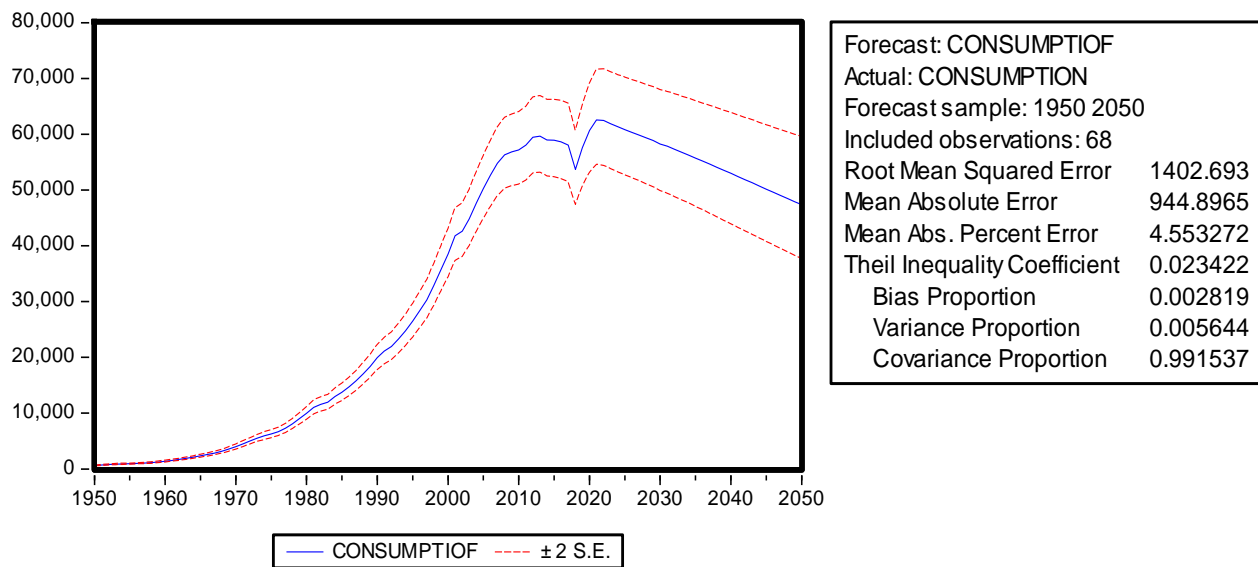
Dependent Variable: LOG(CONSUMPTION)
Method: Least Squares
Date: 12/22/18 Time: 15:01
Sample (adjusted): 1950 2017
Included observations: 68 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-5.125029	1.691800	-3.029335	0.0035
@TREND	3.89E-05	0.004921	0.007907	0.9937
LOG(POPULATION)	0.706647	0.303793	2.326077	0.0232
LOG(GNPNOGR)	0.927194	0.103006	9.001406	0.0000
R-squared	0.998657	Mean dependent var	9.187812	
Adjusted R-squared	0.998594	S.D. dependent var	1.471823	
S.E. of regression	0.055185	Akaike info criterion	-2.899234	
Sum squared resid	0.194904	Schwarz criterion	-2.768674	
Log likelihood	102.5739	Hannan-Quinn criter.	-2.847502	
F-statistic	15865.04	Durbin-Watson stat	0.148467	
Prob(F-statistic)	0.000000			

Model 3: Residual Chart



Model 3: Forecast Evaluation



The following Table 8 shows the forecast values for Consumption Expenditures. It also shows the average, the standard deviation adjusted (SDA) and the coefficient of variation (CV), which equals to the ratio of SDA to the average. The coefficient of variation represents the ratio of the standard deviation to the mean, and it is a useful statistic for comparing the degree of variation from one data series to another. Higher level of CV means higher level of dispersion of the forecasted value relative to the average.

Using the consumption expenditures values, SUT revenues were also estimated using a fixed ratio of 4.1% of consumption. Table 9 depicts the SUT Revenues under the three models. Model 1, 2 and 3 estimated average values of SUT by \$2.614 B; \$2.505 B, and \$2.277 B.

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Table 8 - Consumption Expenditures Forecasts: 2019 to 2050

Consumption Expenditures Forecasts: 2019 to 2050			
Million \$, current prices			
Fiscal Years	Consumption Model 1	Consumption Model 2	Consumption Model 3
2019	\$62,392	\$57,575	\$57,575
2020	\$67,085	\$60,678	\$60,678
2021	\$69,998	\$62,542	\$62,542
2022	\$70,289	\$64,273	\$62,483
2023	\$69,782	\$64,159	\$61,886
2024	\$69,248	\$63,849	\$61,343
2025	\$68,703	\$62,886	\$60,827
2026	\$68,148	\$61,924	\$60,338
2027	\$67,602	\$60,867	\$59,847
2028	\$67,063	\$59,871	\$59,355
2029	\$66,533	\$59,349	\$58,861
2030	\$66,075	\$58,923	\$58,262
2031	\$65,514	\$58,830	\$57,838
2032	\$65,026	\$58,773	\$57,309
2033	\$64,537	\$58,634	\$56,792
2034	\$64,065	\$58,617	\$56,259
2035	\$63,601	\$58,689	\$55,723
2036	\$63,145	\$58,814	\$55,186
2037	\$62,707	\$58,993	\$54,631
2038	\$62,267	\$59,446	\$54,088
2039	\$61,846	\$59,682	\$53,528
2040	\$61,422	\$60,076	\$52,981
2041	\$61,017	\$60,472	\$52,416
2042	\$60,620	\$60,887	\$51,849
2043	\$60,221	\$61,339	\$51,294
2044	\$59,841	\$61,878	\$50,722
2045	\$59,459	\$62,430	\$50,162
2046	\$59,085	\$62,976	\$49,599
2047	\$58,720	\$63,515	\$49,034
2048	\$58,352	\$64,066	\$48,482
2049	\$57,993	\$64,621	\$47,927
2050	\$57,642	\$65,154	\$47,369
2019-2050			
Average	\$63,750	\$61,087	\$55,537
St Dev	3903.9	2191.2	4663.2
CV	6.12%	3.59%	8.40%
Median	\$63,373	\$60,772	\$55,991

Table 9 - SUT Revenue Forecasts: 2019 to 2050

SUT Revenue Forecasts: 2019 to 2050			
Millions \$, current prices			
FY	Consumption Model 1	Consumption Model 2	Consumption Model 3
2019	\$2,558	\$2,361	\$2,361
2020	\$2,750	\$2,488	\$2,488
2021	\$2,870	\$2,564	\$2,564
2022	\$2,882	\$2,635	\$2,562
2023	\$2,861	\$2,631	\$2,537
2024	\$2,839	\$2,618	\$2,515
2025	\$2,817	\$2,578	\$2,494
2026	\$2,794	\$2,539	\$2,474
2027	\$2,772	\$2,496	\$2,454
2028	\$2,750	\$2,455	\$2,434
2029	\$2,728	\$2,433	\$2,413
2030	\$2,709	\$2,416	\$2,389
2031	\$2,686	\$2,412	\$2,371
2032	\$2,666	\$2,410	\$2,350
2033	\$2,646	\$2,404	\$2,328
2034	\$2,627	\$2,403	\$2,307
2035	\$2,608	\$2,406	\$2,285
2036	\$2,589	\$2,411	\$2,263
2037	\$2,571	\$2,419	\$2,240
2038	\$2,553	\$2,437	\$2,218
2039	\$2,536	\$2,447	\$2,195
2040	\$2,518	\$2,463	\$2,172
2041	\$2,502	\$2,479	\$2,149
2042	\$2,485	\$2,496	\$2,126
2043	\$2,469	\$2,515	\$2,103
2044	\$2,453	\$2,537	\$2,080
2045	\$2,438	\$2,560	\$2,057
2046	\$2,422	\$2,582	\$2,034
2047	\$2,408	\$2,604	\$2,010
2048	\$2,392	\$2,627	\$1,988
2049	\$2,378	\$2,649	\$1,965
2050	\$2,363	\$2,671	\$1,942
Average	\$2,614	\$2,505	\$2,277
St Dev	160.1	89.8	191.2
CV	6.12%	3.59%	8.40%
Median	\$2,598	\$2,492	\$2,296

CV = Coefficient of variation

There are several observations that need to be considered regarding the forecasted results under extreme long-range time horizons. A longer timeframe forecast period generates higher standard errors, which means higher degree of uncertainty. Such uncertainty would be reflected in the forecasted values; the more uncertainty, then, a wider width of the forecasting errors. Blix and Sellin (1998) stated that the degree of uncertainty should also reflect how it is compared to historical periods or previous forecast rounds.¹⁵ This uncertainty can arise from the key assumptions in the independent variables or even in the specification of any forecasting model(s). The behavior of these variables is subject to a great number of risk factors or elements at the long run, driving the forecaster to a black hole.

The baseline projections presented by the FOMB, which served as a crucial technical support to the COFINA Agreement, represented a midrange of possible outcomes for the local economy and the U.S. economy. But considerable uncertainty surrounds any projections for two reasons. First, the local and the U.S. economy, are highly complex and they would be affected by many economic and technical factors that are difficult to predict. Second, future legislation is likely to alter the paths of federal spending and revenues, but also local legislation. Climate changes also impose to Puerto Rico and the East Coast of United States an unpredictable future for socio-economic damages and infrastructure scenarios.

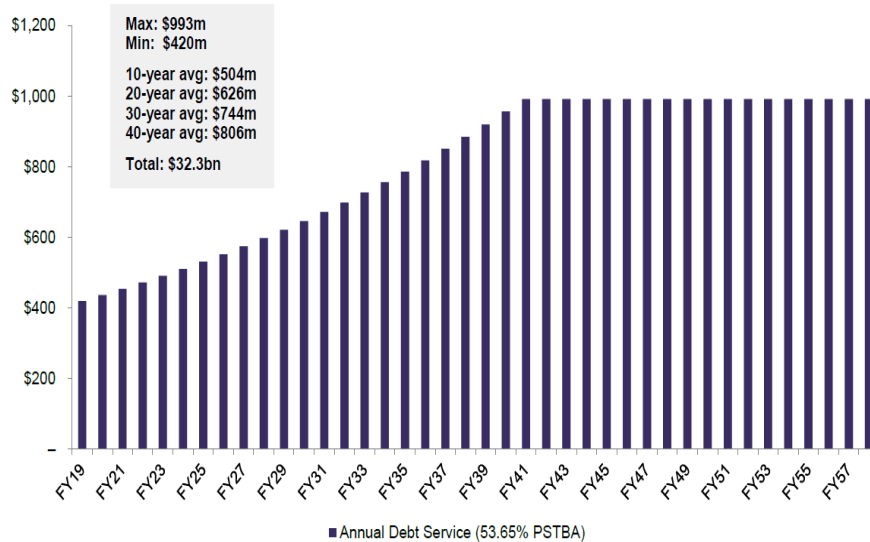
Given such uncertainties, the COFINA Agreement, running under a 40-years ahead of economic conditions and overwhelming risky elements, jeopardizes the resources allocated for public services. Under the Agreement, the bondholders of COFINA senior and junior bonds will exchange their current notes for new senior lien bonds backed by 54% of a 5.5% sales tax law. Senior bondholders will get 93 cents on the dollar with an additional 2 cents for being in the negotiation groups. Junior bondholders will get 56.4 cents on the dollar. After 2044, the bonds will change to capital appreciation bonds that will have increased on value. Through Act 241-2018 the Commonwealth's Legislature amended COFINA's Law to enable the agreement

¹⁵ Blix and Sellin, *Uncertainty bands for inflation forecasts*, Sveriges Riksbank Working Paper Series, No. 65 Provided in Cooperation with: Central Bank of Sweden, Stockholm. Available at www.econstor.eu/bitstream/10419/83036/1/76864125X.pdf.

between the FOMB and the bondholders, turning its back on its constituents by risking the funding for essential services for the current and future years.¹⁶

Graph 12 - The COFINA Settlement Debt Service

EXHIBIT 3: THE COFINA SETTLEMENT DEBT SERVICE (\$M)



6.3. The future scenario under extreme uncertainty

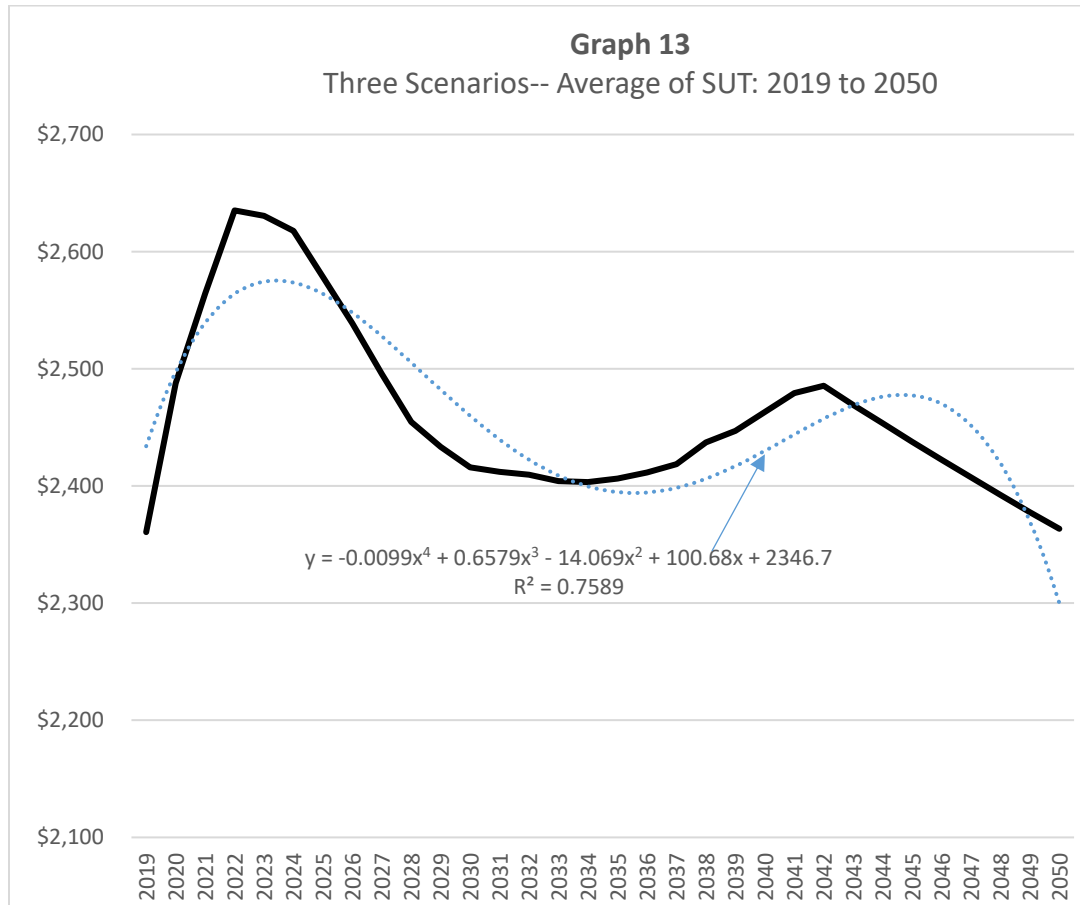
Given the previous **caveats**, the Table 10 compares SUT Average (Three scenarios), SUT reduction by Tax Reform 2018, COFINA Debt Services (DS) and the percent of DS to Net SUT. The Net SUT considered the average of the three scenarios less the recent Tax Reform signed in December 2018 by Governor of Puerto Rico, Ricardo Rosselló-Nevares. Therefore, the ratio SUT to COFINA Debt services (first column to the right side), represents an approximation of SUT resources allocated to debt services. The Table 10 shows a long-term ever-increasing trend of this ratio compromising a higher burden of SUT to bondholders. By 2040, the SUT resources devoted to COFINA debt services may reach 43%, but on 2050, this burden can approach 47%; almost half of the forecasted SUT Revenues.

Table 11 shows the differences between the Net SUT and the COFINA debt services payment; that is, the expected Commonwealth revenues available for Essential Services and

¹⁶ The constitutionality of Act 241-2018 is being questioned in local courts in the case *Manuel Natal Albelo, et al v. Commonwealth of Puerto Rico, et al*, Civil No. SJ2018CV10569.

other marginal obligations. As can be seen, the linear trend confirms an annual reduction of \$25 million per year; at long run, the funds reduction amounted \$731 million.

Graph 13 - Three Scenarios - Average of SUT: 2019 to 2050



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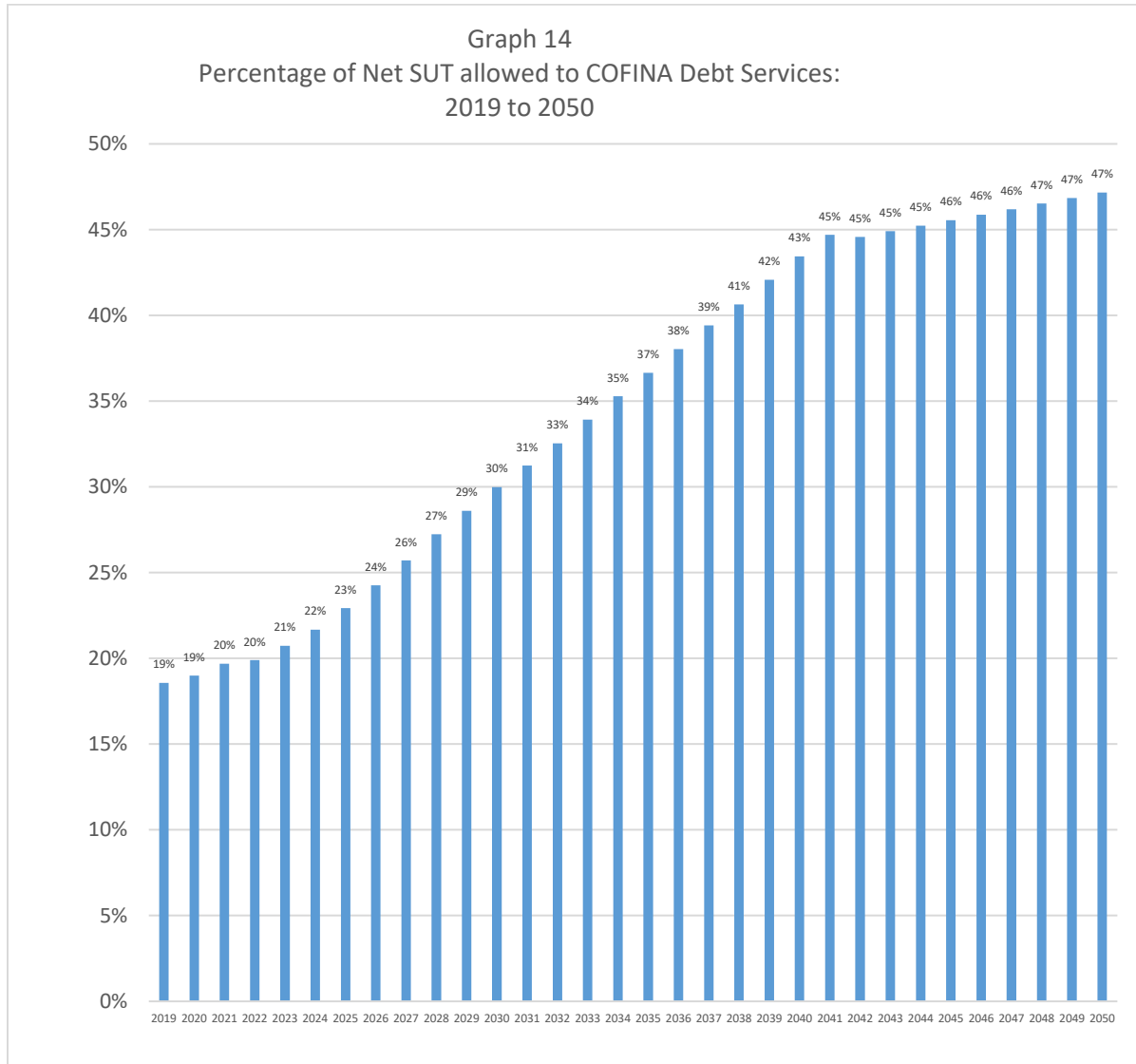
Table 10 - SUT Average (Scenarios), SUT reduction by Tax Reform 2018, COFINA Debt Services (DS) and % of DS to Net SUT

SUT Average (Scenarios), SUT reduction by Tax Reform 2018, COFINA Debt Services (DS) and % of DS to Net SUT 2019 to 2050, in millions \$

Fiscal Year	SUT -Trend Average	SUT reduction	Net SUT	COFINA Debt Service	% COFINA -DS/Net SUT
2019	\$2,361	\$98	\$2,263	420	19%
2020	\$2,488	\$188	\$2,300	437	19%
2021	\$2,564	\$256	\$2,308	454	20%
2022	\$2,635	\$259	\$2,376	473	20%
2023	\$2,631	\$259	\$2,372	492	21%
2024	\$2,618	\$259	\$2,359	511	22%
2025	\$2,578	\$259	\$2,319	532	23%
2026	\$2,539	\$259	\$2,280	553	24%
2027	\$2,496	\$259	\$2,237	575	26%
2028	\$2,455	\$259	\$2,196	598	27%
2029	\$2,433	\$259	\$2,174	622	29%
2030	\$2,416	\$259	\$2,157	647	30%
2031	\$2,412	\$259	\$2,153	673	31%
2032	\$2,410	\$259	\$2,151	700	33%
2033	\$2,404	\$259	\$2,145	728	34%
2034	\$2,403	\$259	\$2,144	757	35%
2035	\$2,406	\$259	\$2,147	787	37%
2036	\$2,411	\$259	\$2,152	819	38%
2037	\$2,419	\$259	\$2,160	851	39%
2038	\$2,437	\$259	\$2,178	885	41%
2039	\$2,447	\$259	\$2,188	921	42%
2040	\$2,463	\$259	\$2,204	958	43%
2041	\$2,479	\$259	\$2,220	993	45%
2042	\$2,485	\$259	\$2,226	993	45%
2043	\$2,469	\$259	\$2,210	993	45%
2044	\$2,453	\$259	\$2,194	993	45%
2045	\$2,438	\$259	\$2,179	993	46%
2046	\$2,422	\$259	\$2,163	993	46%
2047	\$2,408	\$259	\$2,149	993	46%
2048	\$2,392	\$259	\$2,133	993	47%
2049	\$2,378	\$259	\$2,119	993	47%
2050	\$2,363	\$259	\$2,104	993	47%

Sources: Fiscal Plans and the authors' estimates.

Graph 14- Percentage of Net SUT allowed to COFINA Debt Services: 2018 to 2050



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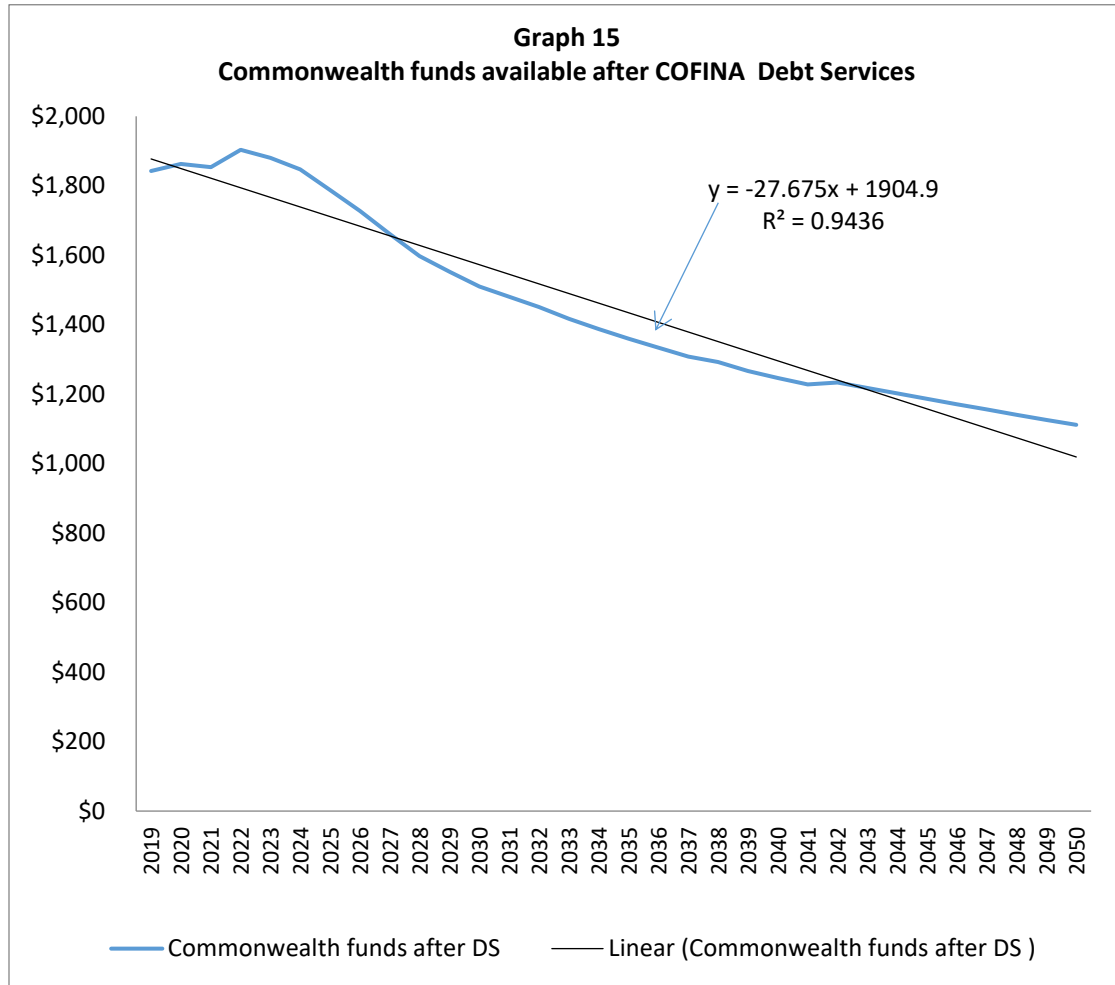
Table 11 - Commonwealth funds available after COFINA debt services

Commonwealth funds available after COFINA debt services, millions \$
FY 2019 to 2050

Fiscal Years	Commonwealth funds after DS	Annual Commonwealth Funds losses
2019	\$1,842	NA
2020	\$1,863	\$20
2021	\$1,854	(\$9)
2022	\$1,904	\$50
2023	\$1,880	(\$24)
2024	\$1,848	(\$32)
2025	\$1,788	(\$60)
2026	\$1,727	(\$61)
2027	\$1,661	(\$65)
2028	\$1,598	(\$64)
2029	\$1,552	(\$45)
2030	\$1,510	(\$42)
2031	\$1,480	(\$30)
2032	\$1,451	(\$29)
2033	\$1,417	(\$34)
2034	\$1,388	(\$30)
2035	\$1,360	(\$27)
2036	\$1,334	(\$26)
2037	\$1,308	(\$25)
2038	\$1,293	(\$15)
2039	\$1,267	(\$26)
2040	\$1,247	(\$21)
2041	\$1,228	(\$19)
2042	\$1,234	\$6
2043	\$1,218	(\$16)
2044	\$1,202	(\$16)
2045	\$1,186	(\$16)
2046	\$1,171	(\$15)
2047	\$1,156	(\$15)
2048	\$1,141	(\$15)
2049	\$1,126	(\$15)
2050	\$1,112	(\$14)

Reduction	(\$731)	(\$731)
Average	\$1,448	
St Dev	267.2579629	
CV	18.45%	
Median	\$1,374	

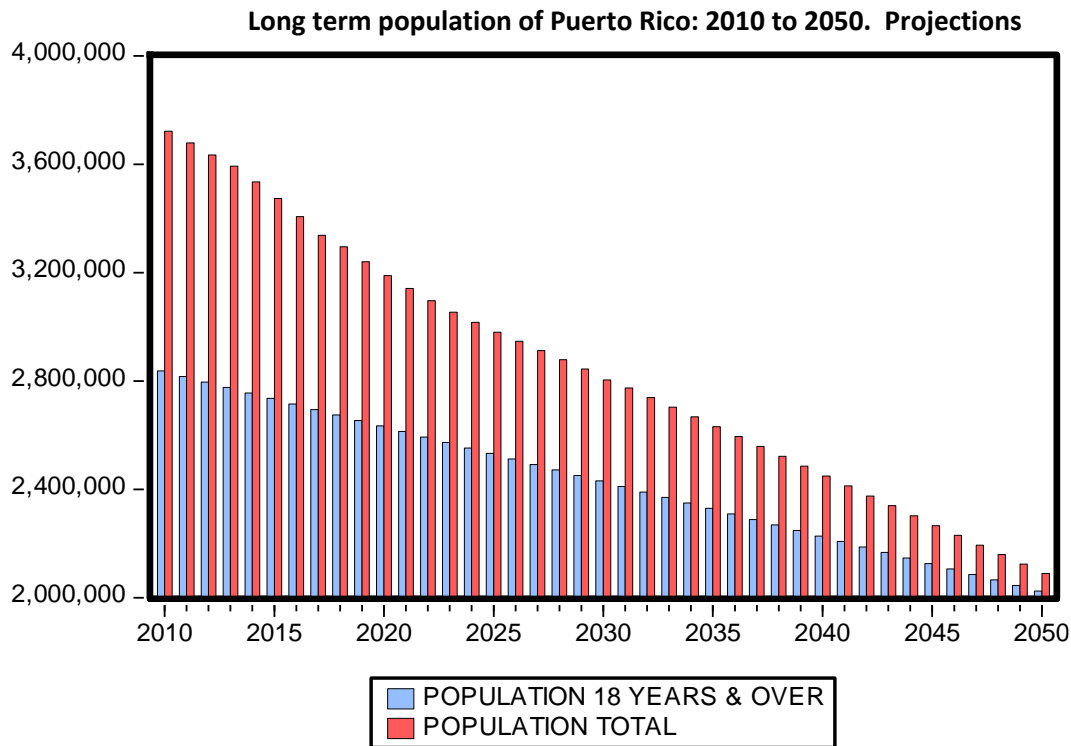
Graph 15 - Commonwealth funds available after COFINA Debt Services



Period	Commonwealth funds losses
2019 to 2050	(\$731)
Average per year	(\$23.57)
2019 to 2058 a/	(\$942.67)

a/ COFINA Agreement period

Graph 16 - Long term population of Puerto Rico: 2010 to 2050. Projections



Source: United States Census Bureau, *Demographic Overview - Custom Region - Puerto Rico*, available at: <https://www.census.gov/data-tools/demo/idb/region.php?N=%20Results%20&T=13&A=separate&RT=0&Y=2050&R=-1&C=RQ>

7. The Flaws of SUT Projections from FOMB

SUT is a function of Consumption Expenditures but not of nominal GNP. The Tax base of any sales tax is consumption; thereby any econometrician must be careful by stating such technical approach. In this study, the projection process was to forecast first, Consumption Expenditures as a function of a combination of three independent variables such as, nominal GNP, consumer prices and the level of population. Then, having Consumption Expenditures estimates, the next step was forecast SUT values for FY 2019 to FY 2050. The FOMB's SUT projections are shown in Table 12. Clearly, the FOMB's SUT projection is a linear function of Nominal GNP growth, therefore, both growth rates have moved *in tandem* at any time frame.

A significant flaw of the FOMB's projections is the following; they are based only in one scenario or a single value, especially when the forecasting endeavor for a 40-years horizon is so risky. The current study used three models and then averaged the consumption values from

these scenarios, which considered different combinations of independent variables. Consider the following statement for any forecasting process... the longer the range, the higher the pain.

On the other hand, Table 14 compares the Net SUTs from this study to that from the FOMB's already estimated by technicians at Excel Files from the FOMB. As can be seen, both projections diverged widely since this study estimates portrayed a downward trend values whereas the FOMB reflects an upward trend, especially after FY 2028. By FY 2050, the FOMB's SUT projections are doubled as opposed to this study. Given such projections, the COFINA debt services as a percentage of total SUT forecasts are also different. By FY 2050, our forecast stated that debt services are 47% of total SUTs while the FOMB's SUT projections amounted 23%.

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Table 12 - SUT and Nominal GNP Projections from FOMB

SUT and Nominal GNP Projections from FOMB
In millions, \$ FY 2019 to 2050

FY	FOMB SUTs	GNP FOMB	Rate of Growth	
			FOMB SUTs	GNP FOMB
FY2019	\$2,680	\$72,077		
FY2020	\$2,871	\$77,201	7.1%	7.1%
FY2021	\$3,000	\$80,685	4.5%	4.5%
FY2022	\$3,124	\$84,011	4.1%	4.1%
FY2023	\$3,151	\$84,725	0.8%	0.8%
FY2024	\$3,164	\$85,088	0.4%	0.4%
FY2025	\$3,141	\$84,471	-0.7%	-0.7%
FY2026	\$3,116	\$83,804	-0.8%	-0.8%
FY2027	\$3,086	\$82,989	-1.0%	-1.0%
FY2028	\$3,059	\$82,256	-0.9%	-0.9%
FY2029	\$3,058	\$82,220	0.0%	0.0%
FY2030	\$3,067	\$82,488	0.3%	0.3%
FY2031	\$3,086	\$83,000	0.6%	0.6%
FY2032	\$3,114	\$83,740	0.9%	0.9%
FY2033	\$3,137	\$84,345	0.7%	0.7%
FY2034	\$3,168	\$85,181	1.0%	1.0%
FY2035	\$3,205	\$86,178	1.2%	1.2%
FY2036	\$3,246	\$87,285	1.3%	1.3%
FY2037	\$3,292	\$88,531	1.4%	1.4%
FY2038	\$3,355	\$90,230	1.9%	1.9%
FY2039	\$3,408	\$91,639	1.6%	1.6%
FY2040	\$3,470	\$93,320	1.8%	1.8%
FY2041	\$3,536	\$95,077	1.9%	1.9%
FY2042	\$3,604	\$96,912	1.9%	1.9%
FY2043	\$3,675	\$98,828	2.0%	2.0%
FY2044	\$3,755	\$100,980	2.2%	2.2%
FY2045	\$3,837	\$103,180	2.2%	2.2%
FY2046	\$3,921	\$105,427	2.2%	2.2%
FY2047	\$4,006	\$107,724	2.2%	2.2%
FY2048	\$4,093	\$110,069	2.2%	2.2%
FY2049	\$4,183	\$112,485	2.2%	2.2%
FY2050	\$4,274	\$114,929	2.2%	2.2%

Table 13 - SUT Projections from FOMB Compared with Current Study Projections

SUT Projections from FOMB Compared with Current Study Projections
In millions \$, FY 2019 to 2050

FY	FOMB SUT	Net SUT	Ratio FOMB' SUT/ Net SUT
FY2019	\$2,680	\$2,263	1.185
FY2020	\$2,871	\$2,300	1.248
FY2021	\$3,000	\$2,308	1.300
FY2022	\$3,124	\$2,376	1.315
FY2023	\$3,151	\$2,372	1.329
FY2024	\$3,164	\$2,359	1.341
FY2025	\$3,141	\$2,319	1.354
FY2026	\$3,116	\$2,280	1.367
FY2027	\$3,086	\$2,237	1.380
FY2028	\$3,059	\$2,196	1.393
FY2029	\$3,058	\$2,174	1.406
FY2030	\$3,067	\$2,157	1.422
FY2031	\$3,086	\$2,153	1.434
FY2032	\$3,114	\$2,151	1.448
FY2033	\$3,137	\$2,145	1.462
FY2034	\$3,168	\$2,144	1.477
FY2035	\$3,205	\$2,147	1.492
FY2036	\$3,246	\$2,152	1.508
FY2037	\$3,292	\$2,160	1.524
FY2038	\$3,355	\$2,178	1.540
FY2039	\$3,408	\$2,188	1.558
FY2040	\$3,470	\$2,204	1.574
FY2041	\$3,536	\$2,220	1.592
FY2042	\$3,604	\$2,226	1.619
FY2043	\$3,675	\$2,210	1.663
FY2044	\$3,755	\$2,194	1.711
FY2045	\$3,837	\$2,179	1.761
FY2046	\$3,921	\$2,163	1.812
FY2047	\$4,006	\$2,149	1.865
FY2048	\$4,093	\$2,133	1.919
FY2049	\$4,183	\$2,119	1.974
FY2050	\$4,274	\$2,104	2.031

Source: Excel Files from FOMB 20181023 and current study from author.

Graph 17 - Sales and Uses Tax Projections: FY 2019 to FY 2050

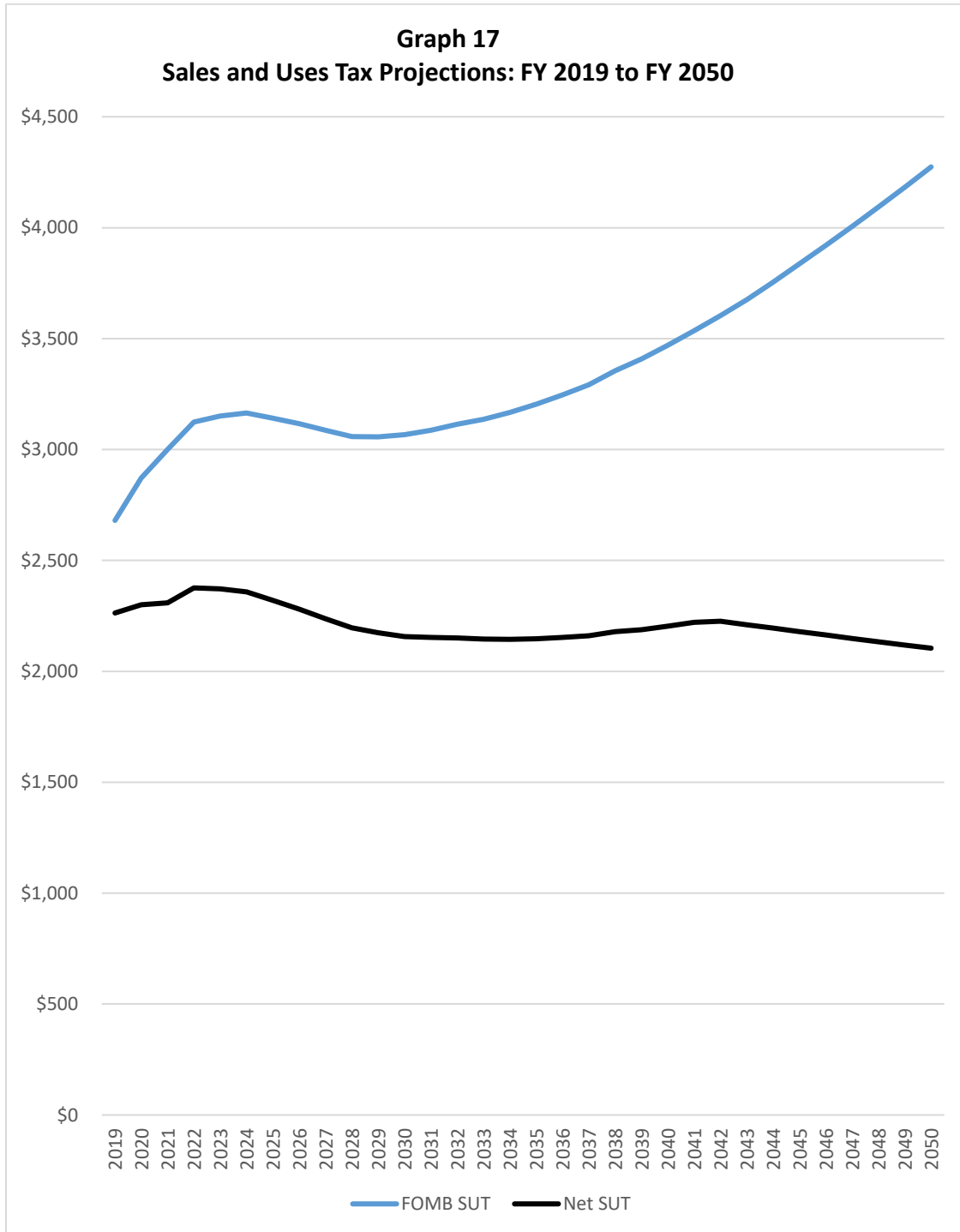


Table 14 - Percentage of COFINA debt services vs SUTs Projections

Percentage of COFINA debt services vs SUTs Projections:
Millions \$, except %. FY 2019 to 2050

FY	Net SUT	COFINA Debt Service	% COFINA -DS/Net SUT	FOMB SUT	% COFINA -DS/Net SUT
2019	\$2,263	420	19%	2,680	16%
2020	\$2,300	437	19%	2,871	15%
2021	\$2,308	454	20%	3,000	15%
2022	\$2,376	473	20%	3,124	15%
2023	\$2,372	492	21%	3,151	16%
2024	\$2,359	511	22%	3,164	16%
2025	\$2,319	532	23%	3,141	17%
2026	\$2,280	553	24%	3,116	18%
2027	\$2,237	575	26%	3,086	19%
2028	\$2,196	598	27%	3,059	20%
2029	\$2,174	622	29%	3,058	20%
2030	\$2,157	647	30%	3,067	21%
2031	\$2,153	673	31%	3,086	22%
2032	\$2,151	700	33%	3,114	22%
2033	\$2,145	728	34%	3,137	23%
2034	\$2,144	757	35%	3,168	24%
2035	\$2,147	787	37%	3,205	25%
2036	\$2,152	819	38%	3,246	25%
2037	\$2,160	851	39%	3,292	26%
2038	\$2,178	885	41%	3,355	26%
2039	\$2,188	921	42%	3,408	27%
2040	\$2,204	958	43%	3,470	28%
2041	\$2,220	993	45%	3,536	28%
2042	\$2,226	993	45%	3,604	28%
2043	\$2,210	993	45%	3,675	27%
2044	\$2,194	993	45%	3,755	26%
2045	\$2,179	993	46%	3,837	26%
2046	\$2,163	993	46%	3,921	25%
2047	\$2,149	993	46%	4,006	25%
2048	\$2,133	993	47%	4,093	24%
2049	\$2,119	993	47%	4,183	24%
2050	\$2,104	993	47%	4,274	23%

8. Conclusions

The findings of this paper can be summarized in the following: (1) the COFINA Plan of Adjustment of Debt is uncertain and totally unreliable; (2) the COFINA Plan cannot be consistent with the Fiscal Plans because they are uncertain and totally unreliable; (3) the Fiscal Plans and the COFINA Plan are not feasible; (4) the Fiscal Plans and the COFINA Plan do not ensure the funding of essential public services; (5) the Fiscal Plans and the COFINA Plan do not provide adequate funding for public pension systems; (6) the Fiscal Plans and the COFINA Plan do not provide for the elimination of structural deficits; and, (7) before or after 2034, the Fiscal Plans and the COFINA Plan will lead Puerto Rico to another default of payment in the bondholders obligations. In sum, the Fiscal Plans are not economically feasible and lack scientific reliability to develop dependable revenue and expenditures projections, which are indispensable to address the confirmation of the COFINA Plan.

Based on all the aforementioned, I hereby present the following conclusions:

- 1) The COFINA Plan of Adjustment of Debt will be effective for the next 40 years. This is a very long-range time frame, and too many unforeseen circumstances will be coming that would affect the feasibility for compliance of the plan. The Fiscal Plans have been designed under an implicit assumption of complete certainty; any margin of error has been taken away without any reasonable explanation.
- 2) Any 40 years long run forecast of SUT collections from the FOMB, is highly uncertain, because Puerto Rico's economy faces an economic secular stagnation.
- 3) The COFINA Plan saddles Puerto Rico with escalating debt payments for the next 40 years, even though the economy has been in a decade-long slump and will continue with marginal or negative growth for the next 40 years. The Fiscal Plans admitted this economic downturn.

- 4) The Commonwealth Fiscal Plan forecasted a primary deficit for year 2035; rising the certainty of defaulting debt payment and, again, forcing new cuts to public pensions and essential services, as well as other austerity measures.
- 5) The growth rates of nominal GNP and Consumption Expenditures have, in paper, the long-run capacity to repay COFINA bondholders, but they are unrealistic and so far, extremely optimistic. Overly optimistic assessments of those prospects are a sure recipe for failure.
- 6) The FOMB insists in the conventional assumption that the U.S. economy is the main driver of Puerto Rico's economic growth, which is no longer valid nor realistic due to secular stagnation.
- 7) The FOMB's economic foundations and policies ignored the Circular Cumulative Causation theory that refers to pervasive effects of any initial changes in relevant variables such as loss in population and governmental cuts of essential services.
- 8) A significant flaw of the FOMB's projections is that they are based only in one scenario or a single value, especially when the forecasting endeavor for a 40-years horizon is so risky. To be reliable, when projecting in such a long range, it is necessary to design different economic models to assess long run uncertainty.
- 9) On December of 2018, the government enacted a Tax Reform which reduced the rate to B2B and the SUT rate to 7% for prepared foods (See Table 7). The COFINA Fiscal Plan does not consider the effects of such Tax Reform in the forecasted values.
- 10) Both Fiscal Plans focused narrowly over its timeframe range (until 2023) despite that the COFINA Agreement to Bondholders ranged a longer timeframe up to FY 2058. The COFINA Fiscal Plans skipped relevant circumstances beyond 2024, especially when most of the Federal Funds for Disaster Relief will be exhausted by that time. The timeframe of the Fiscal Plans and the COFINA Plan are inconsistent, thus fail to establish a foundation for its feasibility and the reliability of the projections.
- 11) Timing and pace of the influx of Federal Disaster Relief funds is uncertain and just for 5 years, while Medicaid funding is temporarily for the next two years. The FOMB's Executive Director, Natalie Jaresko admitted that any prolonged delay in the delivery of the funds destined for the recovery and reconstruction of the island, after the catastrophe caused

from September 20, 2017 by hurricane María, can alter the Fiscal Plans. The effectiveness as a growth factor of the Federal Disaster Relief funds is also in question. Most of those funds have been assigned to non-local firms which are capturing over 90% of them. Those funds will leave Puerto Rico with none or little positive impact in the local economy. Furthermore, given the uncertainty of the arrival and timing of the Federal Funds for Disaster Relief, the FOMB has no contingency plan to achieve the economic goals pursued in the Certified Fiscal Plan. Such economic uncertainty and the fragility of the assumptions and projections of the FOMB has led to several versions of the Fiscal Plan and there will be a continuous need to keep amending the Fiscal Plan once it is evident that its goals have not been met.

- 12) It would be irresponsible to expect the short-term Federal Disaster Relief funds to last and support a rising debt service burden for over 40 years. Indeed, federal budget transfers are due to fall off a cliff in just five years. Moreover, the Island's economic growth will be impeded by poor demographics, as the economically active population will likely continue to move to the mainland in search of better opportunities and access to essential services.
- 13) With Puerto Rico's limited ability to repay at the long run, a generous agreement with one set of bondholders necessarily reduces what the Commonwealth can reasonably offer to other bondholders and claimants and to cover for essential services and retirees. The sustainability of Puerto Rico's debt restructuring needs to be assessed comprehensively, not by looking narrowly at each piece of a bigger puzzle.
- 14) The effects of a waning economy will result in a constant yearly reduction in SUT revenues for the Commonwealth. By giving COFINA a "first dollars" claim on the SUT, it will increase the risk of a substantial decline in tax revenues of the Commonwealth of Puerto Rico. Over the 40 years term of the COFINA Plan almost 1 billion dollars of the Commonwealth's SUT funds will be lost. (See Table 11)
- 15) Reducing COFINA's payments to its bondholders would result in the availability of more resources to the General Funds of the Commonwealth, and consequently, more revenues

that could be allocated to finance essential services and other governmental obligations for the population and the pension liabilities as required by Section 201 of PROMESA.



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Bibliography

Alexa Lardieri, *Fertility Rates Fall as Population Soars*, U.S. News (Nov. 8, 2018), available at <https://www.usnews.com/news/world/articles/2018-11-08/global-population-growing-despite-falling-fertility>

Blix and Sellin, *Uncertainty bands for inflation forecasts*, Sveriges Riksbank Working Paper Series, No. 65 Provided in Cooperation with: Central Bank of Sweden, Stockholm. Available at www.econstor.eu/bitstream/10419/83036/1/76864125X.pdf.

Christine Sgarlata Chung, *Municipal Bankruptcy, Essential Municipal Services and Taxpayers' Voice*, Widerner Law Journal Vol. 24, Issue 1 (2015).

En un año la Isla pierde 130,000 habitantes, SinComillas.com (Dec. 19, 2018) available at <http://sincomillas.com/en-un-ano-la-isla-pierde-130000-habitantes/>

Financial Times. *Definition of Secular Stagnation*. Retrieved October 9, 2014.

Gordon, R., *The Rise and Fall of American Growth*, published by the Princeton University Press in January 2016.

Government Development Bank for Puerto Rico, Investor Resources, Puerto Rico Sales Tax Financing Corporation (COFINA), available at http://www.gdb.pr.gov/investors_resources/cofina.html. Accessed on November 13, 2018.

International Labor Organization, available at <https://www.ilo.org/legacy/english/dialogue/ifpdial/IIg/ch5/ex4.htm>. Accessed on November 13, 2018.

Joanisabel González, *Error en el cálculo de las pensiones en el plan fiscal*, Endi.com (Nov. 20, 2018) available at <https://www.elnuevodia.com/noticias/tribunales/nota/errorenelcalculodelaspensionesenelplanfiscal-2460896/>

José A. Delgado, *La Junta acude a la administración Trump para la liberación de fondos*. Endi.com (December 14, 2018), available at <https://www.elnuevodia.com/noticias/locales/nota/lajuntaacudealaadministraciontrumpparalaliberaciondefondos-2465567/>

Luis García Pelatti, *Solo el 10% de los fondos federales para la recuperación han ido a empresas locales*. SinComillas.com (Sept. 26, 2018), available at <http://sincomillas.com/solo-el-10-de-los-fondos-federales-para-la-recuperacion-se-han-utilizado-en-empresas-locales/>

Mehreen Kasana, *Domestic Violence in Puerto Rico May Be Happening Much More Than What Official Reports Say*, (May 8 2018), available at <https://www.bustle.com/p/domestic-violence-in-puerto-rico-may-be-happening-much-more-than-what-official-reports-say-9029059>

Pablo Gluzmann, Martin Guzman, and Joseph Stiglitz, *An Analysis of Puerto Rico's Debt Relief Needs to Restore Debt Sustainability*, Espacios Abiertos (Jan. 2018), p. 4. Available at: http://www.shankerinstitute.org/sites/shanker/files/PR_DSA-2018.01%20Guzman%20Stiglitz.pdf. Accessed on November 13, 2018.

Population and fertility by age and sex for 195 countries and territories, 1950–2017: a systematic analysis for the Global Burden of Disease Study 2017, Global Health Metrics Vol. 392 (Nov. 10, 2018), available at [https://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736\(18\)32278-5.pdf](https://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(18)32278-5.pdf).

Ricardo Cortés Chico, *The Government is searching a solution for the Police funding*, (December 28, 2018), available at <https://www.elnuevodia.com/english/english/nota/thegovermentissearchingasolutionforthepolicefunding-2467923/>